

REPORT NUMBER: 2010-VER-03-06

**SAFETY COMPLIANCE TESTING FOR FMVSS 201
OCCUPANT PROTECTION IN INTERIOR IMPACT
UPPER INTERIOR HEAD IMPACT PROTECTION**

**FORD MOTOR CORPORATION
2003 FORD RANGER XLT SUPERCAB**

NHTSA NUMBER: C30205

VERIDIAN TEST NUMBER: 8653-FMH-11

VERIDIAN ENGINEERING
TRANSPORTATION SCIENCES CENTER
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BUFFALO, NEW YORK 14225



Date: February 26, 2003

FINAL REPORT

PREPARED FOR:

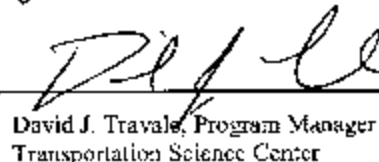
U. S. DEPARTMENT OF TRANSPORTATION
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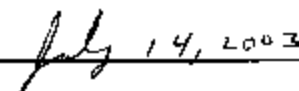
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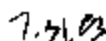
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16. <i>Abstract</i> Compliance tests were conducted on the subject vehicle, a 2003 Ford Ranger XLT Supercab in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure TP-201U-01 for determination of FMVSS 201 compliance. Test failures identified were as follows: None			
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SECTION 1

PURPOSE AND TEST PROCEDURE

This head impact compliance test is part of the FMVSS 201 Upper Interior Head Impact Protection Test Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-99-C-01005. The purpose of this head impact compliance test was to determine whether the subject vehicle, 2003 Ford Ranger XLT Supercab, NHTSA No. C30205, meets the performance requirements of FMVSS 201, Occupant Protection in Interior Impact. The compliance test was conducted using the requirements found in the OVSC Laboratory Test Procedure No. TP-201U-01 dated April 3, 1998.

SECTION 2

SUMMARY OF UPPER INTERIOR HEAD IMPACTS

A 2003 Ford Ranger XLT Supercab, NHTSA No. C30205, was impacted at various locations throughout its upper interior by a 4.54 kg 50th percentile headform. A total of ten (10) impacts were performed in this test series. The target area impacts were chosen by the NHTSA Contracting Officers Technical Representative (COTR). A summary of test results can be found on data sheet 2-1. The ten (10) areas chosen for testing were:

AP1	DF1	SR2B	RP2	URBP
AP2	DF3		RH	
AP3	DF4			

The selected impact areas on the test vehicle appeared to comply with the performance requirements of FMVSS 201.

Five Free Motion Headforms (FMH), were used in this test series. All five FMH's were calibrated prior to and after the test series. Calibration information are included in Appendix B. Each FMH weighed 4.54 ± 0.5 kg, and had orthogonal tri-axis accelerometer pack mounted at the center of gravity (c.g.).

A total of three (3) channels of data for each target impact test was recorded on a Keyser Threda data acquisition system. Data plots along with still photographs can be found in Section 3 of this report.

To document each target area impact test, one Kodak Ektapro high speed video camera was to record the headform contact with the selected target area.

DATA SHEET 2-1

SUMMARY OF UPPER INTERIOR HEAD IMPACT TESTS

Year/Make/Model/Body Style:	2003 Ford Ranger XLT SuperCab		
Vehicle Body Color:	Blue	VIN:	1FTYR44V43PA35111
Vehicle NHTSA No.:	C30205	Month & Year of Manufacture:	10/2002

Test No.	Code	Target		Z (mm)		Approach Angles (degrees)		Velocity (kph)	FMH HIC	HIC(0)*
		X (mm)	Y (mm)	Z (mm)		Horizontal	Vertical			
1	AP3	2487	602	1549	155	42	42	23.46	567.2	594.4
2	AP1	2593	508	1711	151	50	50	23.56	622.5	636.1
3	SR2B	2930	521	1755	90	31	31	23.47	576.8	601.6
4	DF4	3282	654	1474	90	-10	-10	23.57	353.1	432.8
5	DF1	3234	482	1743	90	14	14	23.68	398.8	467.3
6	RP2	3582	607	1593	52	-4	-4	23.80	586.3	608.7
7	RH	3578	-363	1758	360	25	25	23.67	687.9	685.4
8	DF3	3142	-650	1521	270	-9	-9	23.74	525.1	562.6
9	URBP	3229	-414	1775	270	33	33	23.68	631.1	642.6
10	AP2	2543	-594	1633	205	5	5	23.41	352.1	432.0

Note : Origin of coordinate system is the front center of the vehicle bumper using Ford's reference coordinate's (front outboard sill striker bolt hole : x = 3262.51mm , y = 723.69mm , z = 633.06mm)

*HIC(0) - 0.75446(Free Motion Headform HIC) - 166.4

DATA SHEET 2-2

TEST RESULTS SUMMARY TABLE

Year/Make/Model/Body Style: 2003 Ford Ranger XLT Supercab
 Vehicle Body Color: Blue VIN: 1FTYR44V43PA35111
 Vehicle NHTSA No.: C30205 Month & Year of Manufacture: 10/2002

Target (mm)				Horizontal Impact angle	Vertical Impact Angle	Velocity (KPH)	FMH-HIC	IHC(d)
	X	Y	Z					
A-PILLAR DRIVER SIDE								
AP1	2586	-543	1738	R=2		-	-	-
Rel. AP1	2592	-516	1715	-	-	-	-	-
AP2	2544	-597	1651	R=1		-	-	-
Rel. AP2	2543	-594	1633	205	5	23.41	352.1	432.0
AP3	2488	-606	1554	-	-	-	-	-
A-PILLAR PASSENGER SIDE								
AP1	2590	543	1736	R=2		-	-	-
Rel. AP1	2593	508	1711	151	50	23.56	622.5	636.1
AP2	2547	592	1648	R=1		-	-	-
Rel. AP2	2550	594	1633	-	-	-	-	-
AP3	2437	602	1549	155	42	23.46	567.3	594.4
DOOR FRAME DRIVER SIDE								
DF1	3230	-479	1741	-	-	-	-	-
DF2	3180	-588	1616	-	-	-	-	-
DF3	3144	-650	1521	270	-9	23.74	525.1	562.6
DF4	3284	-673	1409	R=3		-	-	-
Rel. DF4	3273	-655	1481	-	-	-	-	-
DOOR FRAME PASSENGER SIDE								
DF1	3234	482	1743	90	14	23.68	398.8	467.3
DF2	3183	587	1612	-	-	-	-	-
DF3	3151	645	1520	-	-	-	-	-
DF4	3287	671	1410	R=3		-	-	-
Rel. DF4	3282	654	1474	90	-10	23.57	353.1	432.8

Note R=1 - Relocated once (one sphere) R=2 - Relocated twice (two spheres)

Target (mm)				Horizontal Impact angle	Vertical Impact Angle	Velocity (KPH)	FMH-HIC	HIC(J)
	X	Y	Z					
FRONT HEADER DRIVER SIDE								
FH1	2500	-428	1715			-	-	-
FH2	2480	-279	1721	-	-	-	-	-
FRONT HEADER PASSENGER SIDE								
FH1	2508	432	1716	-	-	-	-	-
FH2	2484	279	1722	-	-	-	-	-
SIDE RAIL DRIVER SIDE								
SR1	2739	-527	1749	-	-	-	-	-
SR2A	2892	-520	1755	-	-	-	-	-
SR2B	2931	-522	1754	-	-	-	-	-
SR3	3380	-512	1731	-	-	-	-	-
SIDE RAIL PASSENGER SIDE								
SR1	2736	522	1752	-	-	-	-	-
SR2A	2885	520	1755	-	-	-	-	-
SR2B	2930	521	1755	90	31	23.47	576.8	601.6
SR3	3387	515	1733	-	-	-	-	-
UPPER ROOF DRIVER SIDE								
URBP	3229	-414	1775	270	33	23.68	651.1	642.6
UPPER ROOF PASSENGER SIDE								
URBP	3231	422	1776	-	-	-	-	-
REAR HEADER DRIVER SIDE								
RH	3578	-363	1758	-	-	-	-	-
REAR HEADER PASSENGER SIDE								
RH	3579	364	1762	-	-	-	-	-
REAR PILLAR DRIVER SIDE								
RP1	3556	-514	1741	-	-	-	-	-
RP2	3579	-600	1593	-	-	-	-	-
REAR PILLAR PASSENGER SIDE								
RP1	3549	518	1742	-	-	-	-	-
RP2	3582	607	1593	52	-4	23.80	586.3	608.7

Note R=1 - Relocated once (one sphere) R=2 - Relocated twice (two spheres)

DATA SHEET 2-3

GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 2003 Ford Ranger XLT Supercab
 Vehicle Body Color: Blue VIN: 1FTYR44V43PA35111
 Vehicle NHTSA No.: C30205 Month & Year of Manufacture: 10/2002
 Engine Data: 6 Cylinders; - CID; 3.0 Liters; - cc
 Engine Placement: x Longitudinal; or - Lateral
 Transmission: 5 Speed; x Manual; - Automatic; - Overdrive
 Final Drive: x Rear Wheel Drive; - Front Wheel Drive; - Four Wheel
 Odometer Reading 7 km
 Options: x A/C; x Power Steering; x Pwr.Brakes; - Pwr. Windows

Interior Trim Information:

1. Grab handles located on both A-pillars
2. Adjustable d-rings located on both B-pillar door frames.

DATA FROM TIRE PLACARD

Tire Pressure (at capacity): 207 kPa FRONT
207 kPa REAR
 Recommended Tire Size: P225/70R15
 Tires on Test Vehicle: P225/70R15; Manufacturer: Continental
 Vehicle Capacity Data:
 Number of Occupants: 2 Front; 2 Rear; - 3rd Seat; 4 Total
 Type of Front Seats: x Bucket; - Bench; - Split Bench
 Type of Front Seat Back: - Fixed; x Adjustable with x Lever or - Knob
 Vehicle Capacity Weight (VCW)= 531 kg (A)
 No. of Occupants x 68 kg. = 272 kg (B)
 Rated Cargo/Luggage Weight (RC LW) = 259 kg (A-B) Max. RC LW 136 kg.

TEST VEHICLE DELIVERED WEIGHT WITH MAXIMUM FLUIDS:

Left Front	<u>491</u> kg	Left Rear	=	<u>342</u> kg
Right Front	= <u>463</u> kg	Right Rear		<u>323</u> kg
TOTAL FRONT	<u>954.0</u> kg	TOTAL REAR	=	<u>665.0</u> kg
% of Total Weight =	<u>58.9</u> %	% of Total Weight =		<u>41.1</u> %
TOTAL WEIGHT	<u>1619.0</u> kg			

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Test Vehicle Delivered Weight	=	<u>1619.0</u> kg
- Rated Cargo/Luggage Weight	=	<u>136.0</u> kg
TEST VEHICLE TARGET WEIGHT:	=	<u>1755.0</u> kg

WEIGHT OF TEST VEHICLE (FULLY LOADED):

Left Front	=	<u>474</u>	kg	Left Rear	=	<u>422</u>	kg
Right Front	=	<u>452</u>	kg	Right Rear	=	<u>401</u>	kg
TOTAL FRONT	=	<u>926.0</u>	kg	TOTAL REAR	=	<u>823.0</u>	kg
% of Total Weight		<u>52.9</u>	%	% of Total Weight		<u>47.1</u>	%
TOTAL TEST WEIGHT	=	<u>1749.0</u>	kg				

Weight of vehicle secured in test vehicle's cargo area = 136 kg.

TEST VEHICLE ATTITUDE (all dimensions in millimeters):**AS DELIVERED:**

Left Front	<u>812</u>	Right Front	<u>824</u>	Left Rear	<u>859</u>	Right Rear	<u>851</u>
------------	------------	-------------	------------	-----------	------------	------------	------------

FULLY LOADED:

Left Front	<u>815</u>	Right Front	<u>827</u>	Left Rear	<u>822</u>	Right Rear	<u>815</u>
------------	------------	-------------	------------	-----------	------------	------------	------------

Test Vehicle Wheelbase: 3193 millimeters

TEST VEHICLE PITCH AND ROLL ANGLES:**AS DELIVERED:****PITCH ANGLES**

Left Door Sill	<u>0.8 °</u>	Right Door Sill	<u>0.8 °</u>
----------------	--------------	-----------------	--------------

ROLL ANGLES

Front Bumper	<u>0.6 °</u>	Rear Bumper	<u>0.4 °</u>
--------------	--------------	-------------	--------------

FULLY LOADED:**PITCH ANGLES**

Left Door Sill	<u>0.1 °</u>	Right Door Sill	<u>0.1 °</u>
----------------	--------------	-----------------	--------------

ROLL ANGLES

Front Bumper	<u>0.7 °</u>	Rear Bumper	<u>0.4 °</u>
--------------	--------------	-------------	--------------

AS TESTED:**PITCH ANGLES**

Left Door Sill	<u>0.3 °</u>	Right Door Sill	<u>0.3 °</u>
----------------	--------------	-----------------	--------------

ROLL ANGLES

Front Bumper	<u>0.6 °</u>	Rear Bumper	<u>0.4 °</u>
--------------	--------------	-------------	--------------

DATA SHEET 2-4
TARGET MEASUREMENT REFERENCE SHEET

Year/Make/Model/Body Style: 2003 Ford Ranger XLT Supercab
 Vehicle Body Color: Blue VIN: 1FTYR44V43PA35111
 Vehicle NHTSA No.: C30205 Month & Year of Manufacture: 10/2002

Measurements	Description	Left Side	Right Side
M	Seat fore / Aft travel (Front seats)	248	248
T° _{DRIVER SEAT}	Horizontal angle {CG-F1 (Left seat) to (Right A-pillar)}	158	-
A1° _{DRIVER SEAT}	360° - T°	202	-
W° _{DRIVER SEAT}	Horizontal angle {CG-F2 (Left seat) to (Left A-pillar)}	250	-
A2° _{DRIVER SEAT}	A2° = W°	250	-
U° _{DRIVER SEAT}	Horizontal angle {CG-F2 (Left seat) to (Left B-pillar)}	278	-
B1° _{DRIVER SEAT}	B1° = U°	278	-
V° _{DRIVER SEAT}	Horizontal angle {CG-FR (Left seat) to (Right B-pillar)}	230	-
B2° _{DRIVER SEAT}	B2° = V°	230	-
W° _{PASSENGER SEAT}	Horizontal angle {CG-F2 (Right seat) to (Right A-pillar)}	-	158
A1° _{PASSENGER SEAT}	A1° (Right) = W° (Right)	-	158
T° _{PASSENGER SEAT}	Horizontal angle {CG-F1 (Right seat) to (Left A-pillar)}	-	250
A2° _{PASSENGER SEAT}	360° - T°(Right)	-	110
V° _{PASSENGER SEAT}	Horizontal angle {CG-FR (Right seat) to (Right B-pillar)}	-	82
B1° _{PASSENGER SEAT}	B1° (Right) = V° (Right)	-	82
U° _{PASSENGER SEAT}	Horizontal angle {CG-F2 (Right seat) to (Right B-pillar)}	-	130
B2° _{PASSENGER SEAT}	B2° (Right) = U° (Right)	-	130
J	A-pillar {(Plane 3) - (Plane 5)}	362	362
J/2	J÷2	181	181
D1	Upper Roof {(Plane A) - (Plane B)}	1248	
D1/2	D1÷2	624	
D2	Upper Roof {(Plane C) - (Plane D)}	1260	
D2/2	D2÷2	630	
.35D1	.35 x D1	437	
.35D2	.35 x D2	441	
N	B-pillar {(BPR) - (lowest point on the daylight opening forward of B-pillar)}	446	444
N/2	B-pillar {(BP3) - (lowest point on the daylight opening forward of B-pillar)}	223	222

Measurement	Description	Left Side	Right Side
N/4	B-pillar {(BP3) - (lowest point on the daylight opening forward of B-pillar)}	111.5	111
Q	Other-pillar {(OPR) - (lowest point on the daylight opening forward of O-pillar)}	-	-
Q/2	Other-pillar {(OP2) - (lowest point on the daylight opening forward of O-pillar)}	-	-
D	{(Corner of roof area, point 7) - (roof area center, point M)}	630	628
3D/7	$(3 \times D) \div 7$	270	269
MM	Widest door opening of slider door	-	-
M	$MM \div 2$	-	-

DATA SHEET 2-5

APPROACH ANGLE LIMITS

Left Side					Right Side				
Target Code	Horizontal Angles (deg.)		Vertical Angles (deg.)		Target Code	Horizontal Angles (deg.)		Vertical Angles (deg.)	
	Minimum	Maximum	Minimum	Maximum		Minimum	Maximum	Minimum	Maximum
AP1	202	250	-5	33	AP1	10	158	-5	37
AP2	202	250	-5	5	AP2	10	158	-5	5
AP3	202	250	-5	42	AP3	110	158	-5	42
DF1	230	274	-10	15	DF1	82	130	-10	14
DF2	ANY		0	-9	DF2	ANY		0	-10
DF3	230	278	-10	-9	DF3	82	130	-10	-9
DF4	230	274	-10	-10	DF4	82	130	-10	-10
OP1	270		-10	-	OP1	90		-10	-
OP2	270		10	-	OP2	90		-10	-
RP1	270	345	-10	6	RP1	15	90	-10	8
RP2	270	345	10	-4	RP2	15	90	-10	-4
FH1	180		0	50	FH1	180		0	50
FH2	180		0	50	FH2	180		0	50
RH	360		0	25	RH	0		0	25
SR1	270		0	33	SR1	90		0	33
SR2A	270		0	31	SR2A	90		0	31
SR2B	270		0	31	SR2B	90		0	31
SR3	270		0	29	SR3	90		0	30
SD	270		0	-	SD	90		0	-
URBP	ANY		0	33	URHP	ANY		0	33

Note: DF2 target location - D-ring anchorage point

DATA SHEET 2-6

POST-TEST VISUAL INSPECTION

Year/Make/Model/Body Style: 2003 Ford Ranger XLT Supercab
Vehicle Body Color: Blue VIN: 1FTYR44V43PA35111
Vehicle NHTSA No.: C30205 Month & Year of Manufacture: 10/2002

REMARKS:

1. A-pillar grab handle bent upon AP3 impact from headform.
2. Door frame trim cracked during DF4 impact.

DATA SHEET 2-7

TARGET IMPACT LOCATION ON FMH SUMMARY

Year/Make/Model/Body Style: 2003 Ford Ranger XLT Supercab
 Vehicle Body Color: Blue VIN: 1FTYR44V43PA35111
 Vehicle NHTSA No.: C30205 Month & Year of Manufacture: 10/2002



← RIGHT SIDE OF FACE

TARGET	Distance Above Pt. O (mm)	Distance Over From Pt. O (mm)
AP3	18	10 to the left
AP1	33	0
SR2B	25	0
DF4	26	4 to the left
DF1	31	0
RP2	10	0
RH	18	8 to the right
DF3	19	0
URBP	70	0
AP2	6	0

SECTION 3

SUMMARY OF TEST RESULTS AND DATA PLOTS

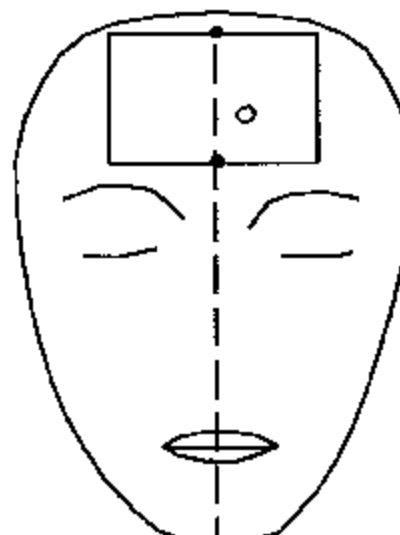
TEST SUMMARY SHEET FOR FMVSS 201/U TESTING

Year/Make/Model/Body Style: 2003 Ford Ranger XLT Supercab
 Vehicle Body Color: Blue VIN: 1FTYR44V43PA35111
 Vehicle NHTSA No.: C30205 Month & Year of Manufacture: 10/2002

Test Number: 1 Test Date: February 25, 2003
 Target Location: A-PILLAR Target Code: AP3
 Horizontal Impact Angle: 155 ° Vertical Impact Angle: 42 °
 Ambient Temperature: 23 °C Time of Impact: 10:45
 Headform Number: 0355

Impact Point:
 Description:

Description:	From lower midpoint			
On centerline	18	mm up		
On centerline	10	-	mm right	x mm left



Free Motion HIC: 567.3 HEC(d): 594.4
 Impact Velocity (kph): 23.46 HIC1: 5.8 msec HIC2: 11.9 msec

Post-Test Comments:

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

FMH Headform 0355

Location: AP3

Test Date: February 25, 2003

Work File: AP3

TEST RESULTS

Lab Temperature: 23 C

HICd: 594.4

Lab Humidity: 11 %

HIC (36ms): 567.3

Velocity at Impact: 23.46 KPH

t1: 5.8 msec

t2: 11.9 msec

Free Flight Distance: 218.82 mm

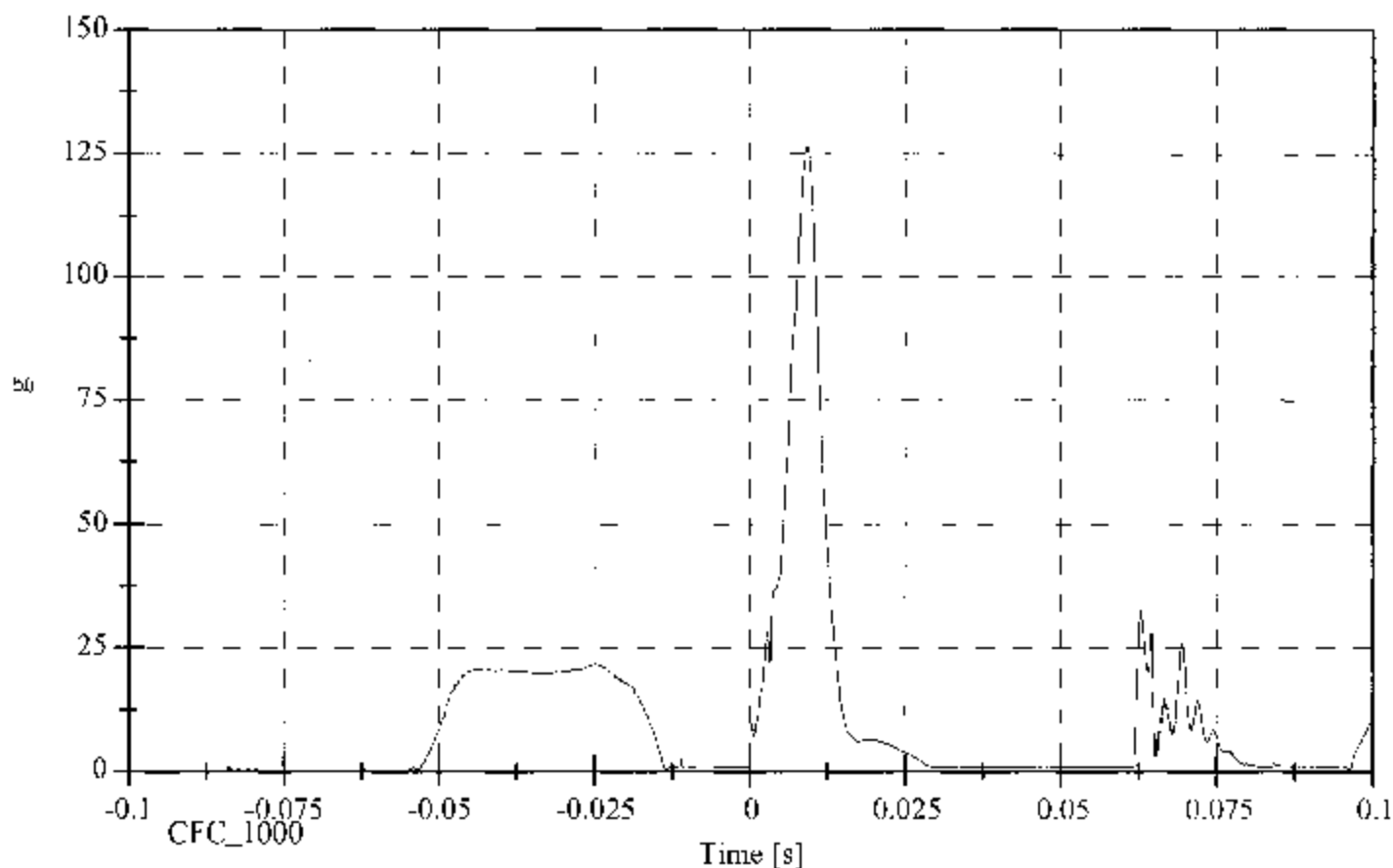
Duration: 6.1 msec

Average Acceleration: 9.3 g

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP
Headform Resultant

Max: 126.7 [g] at 0.009 [s]

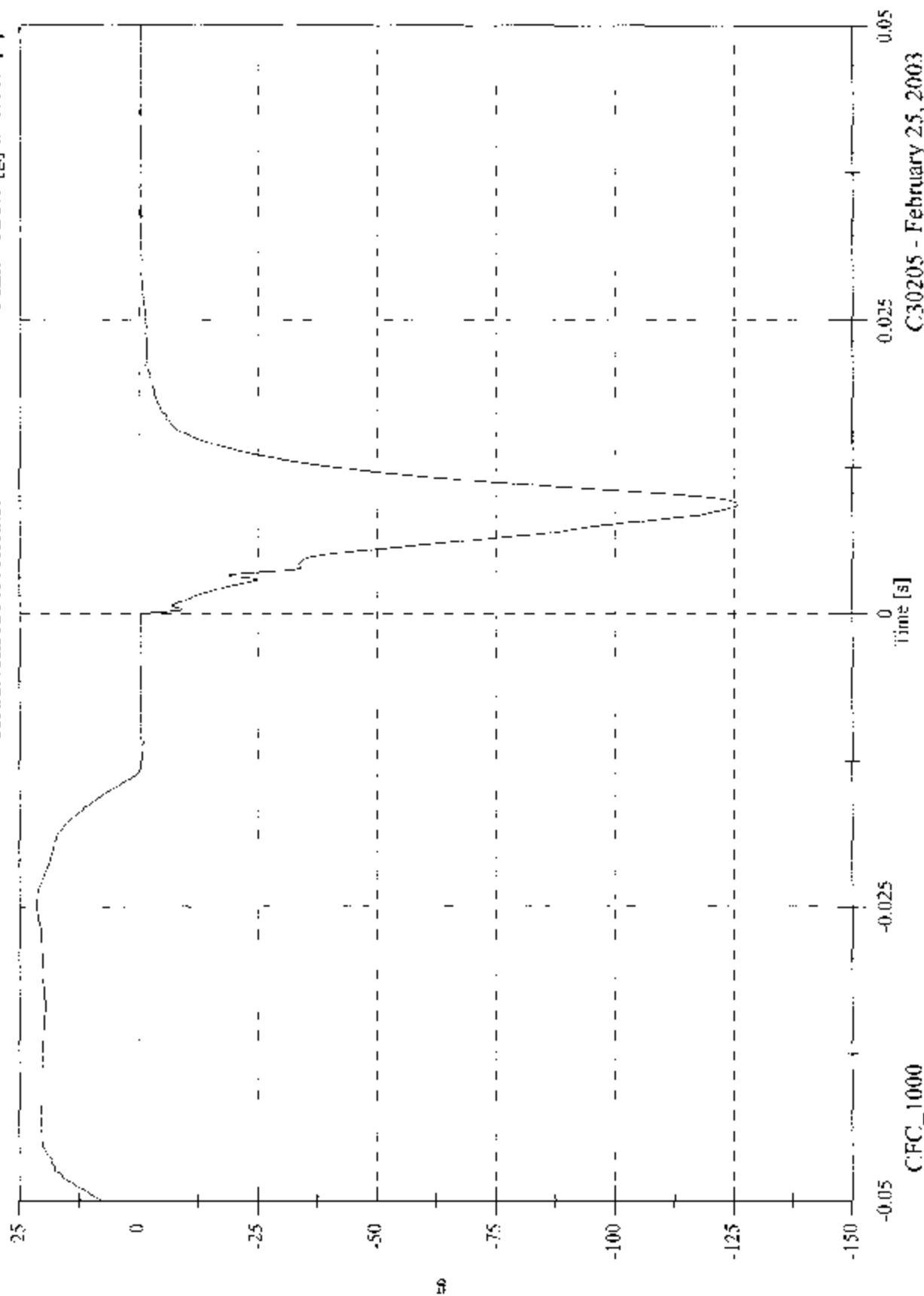
Min: 0.0 [g] at -0.063 [s]



FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Headform X Acceleration

Max: 21.5 [g] at -0.025 [s]
Min: -126.0 [g] at 0.009 [s]

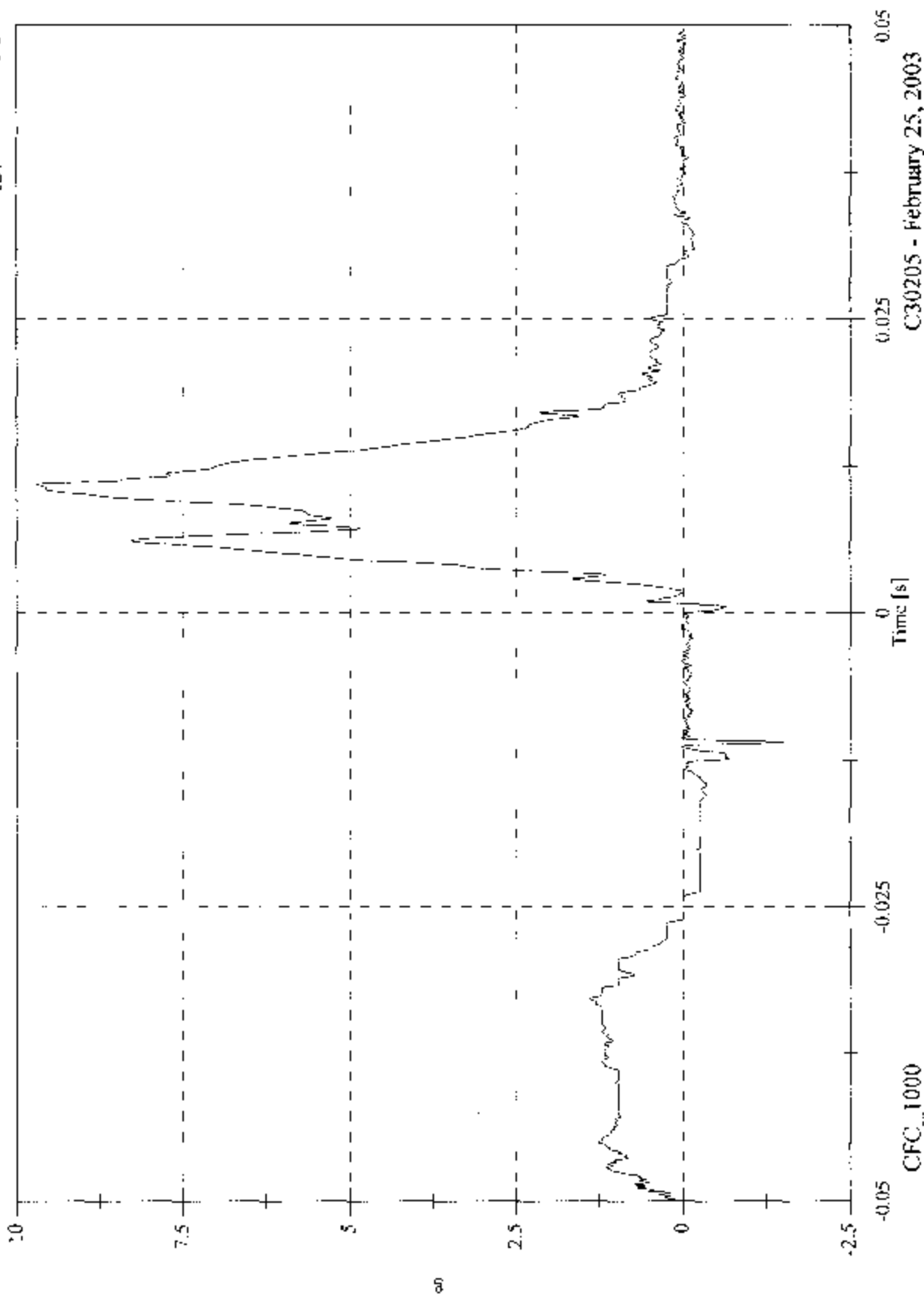


C30205 - February 25, 2003

FMVSS 201C IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Max: 9.7 [g] at 0.011 [s]
Min: -1.5 [g] at -0.011 [s]

Headform Y Acceleration



CFC_1000

-0.025

Time [s]

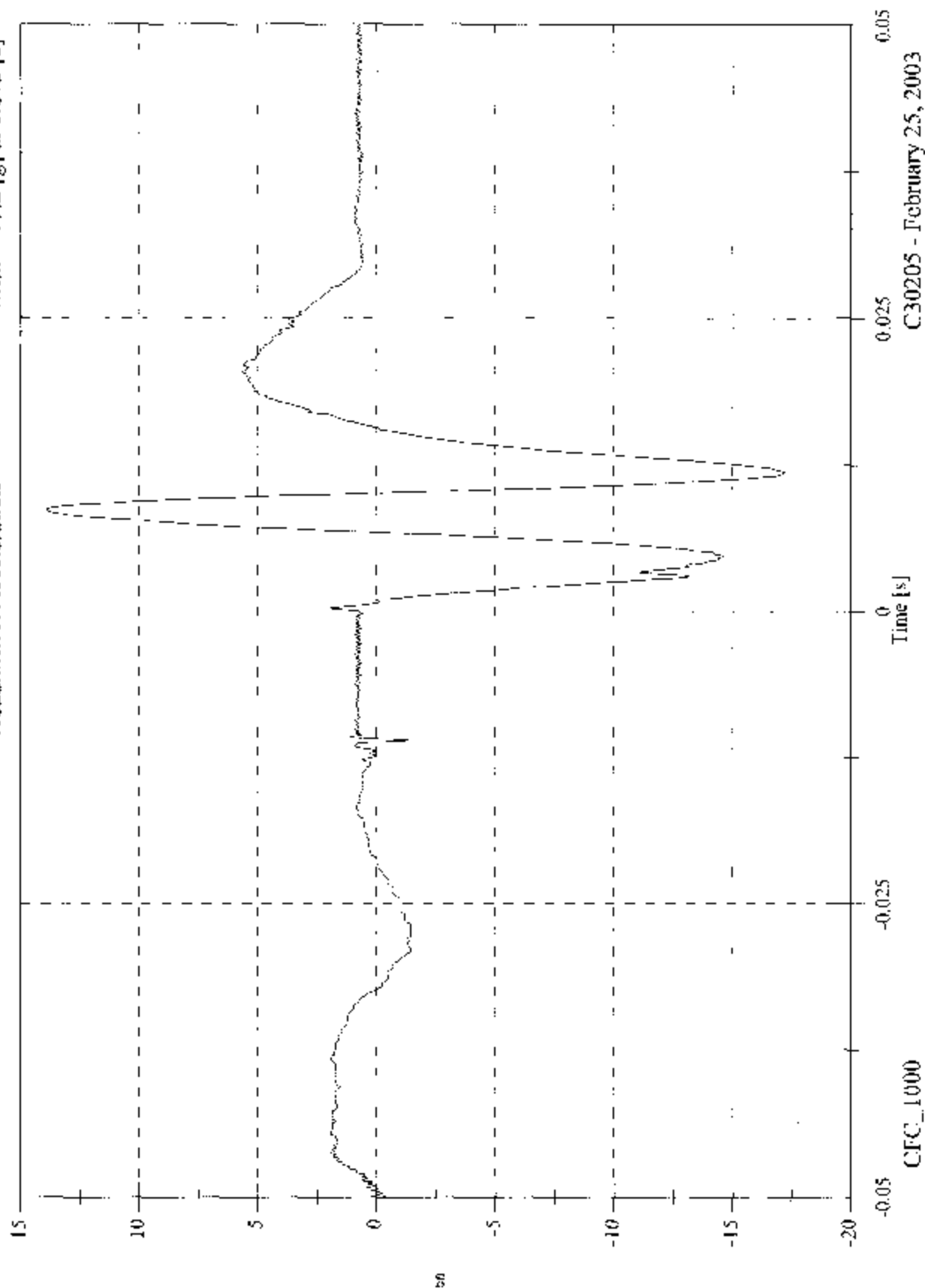
0.025

0.05

C30205 - February 25, 2003

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP
Headform Z Acceleration

Max: 13.9 [g] at 0.009 [s]
Min: -17.2 [g] at 0.012 [s]



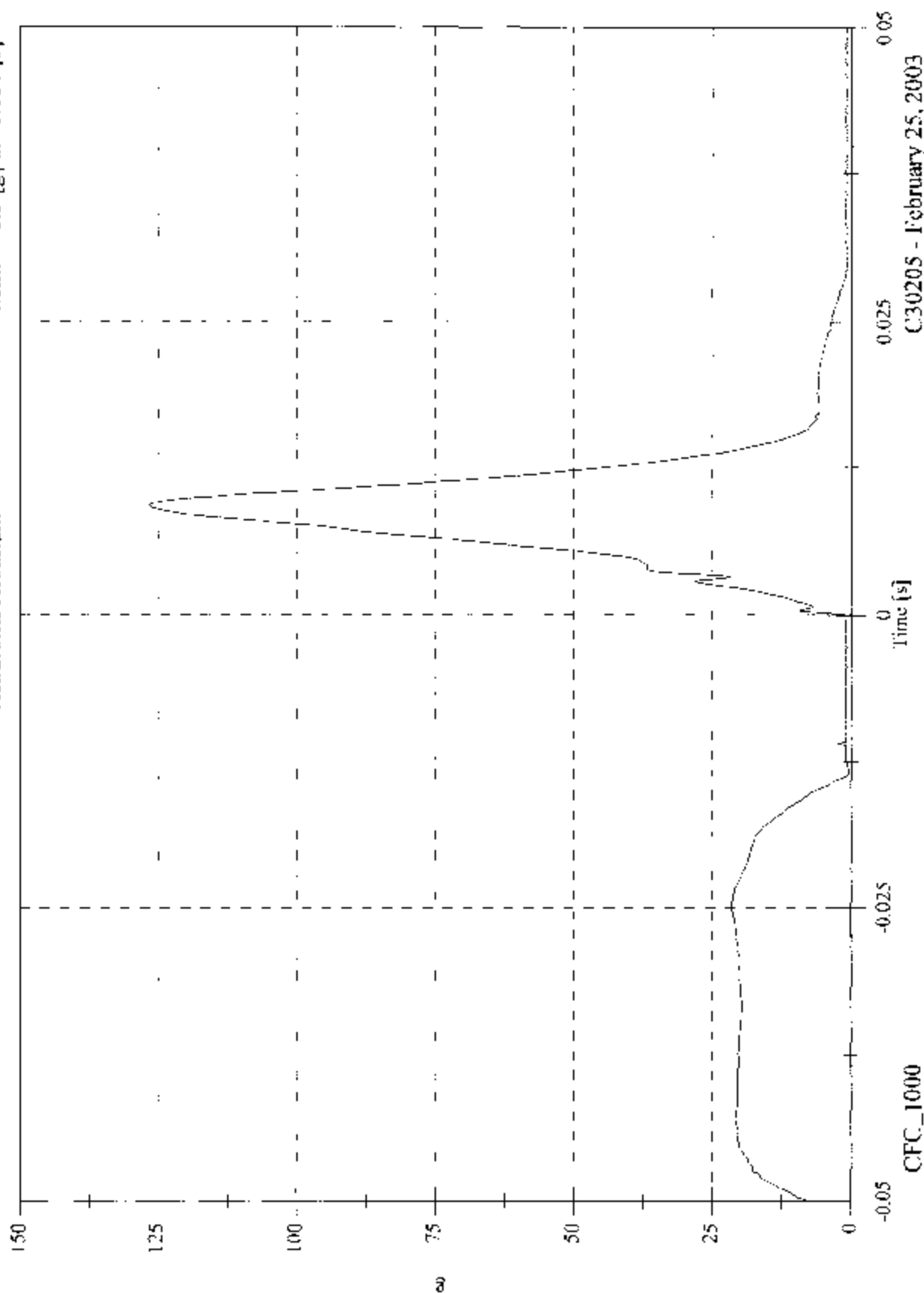
C30205 - February 25, 2003

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Headform Resultant

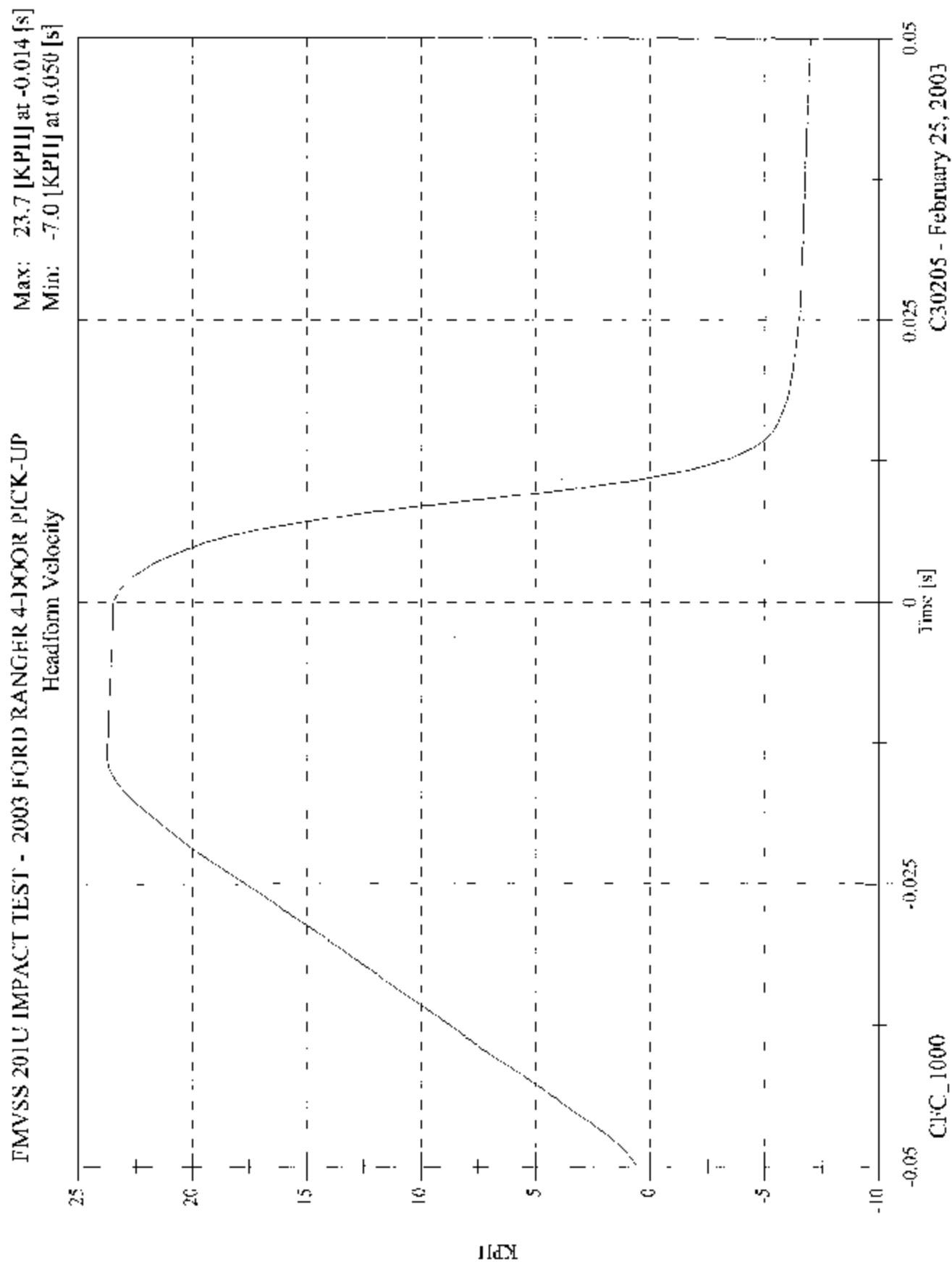
Max: 126.7 [g] at 0.009 [s]

Min: 0.5 [g] at -0.014 [s]



C30205 - February 25, 2003

C30205 PASSENGER SIDE AP3 IMPACT PLOT #5

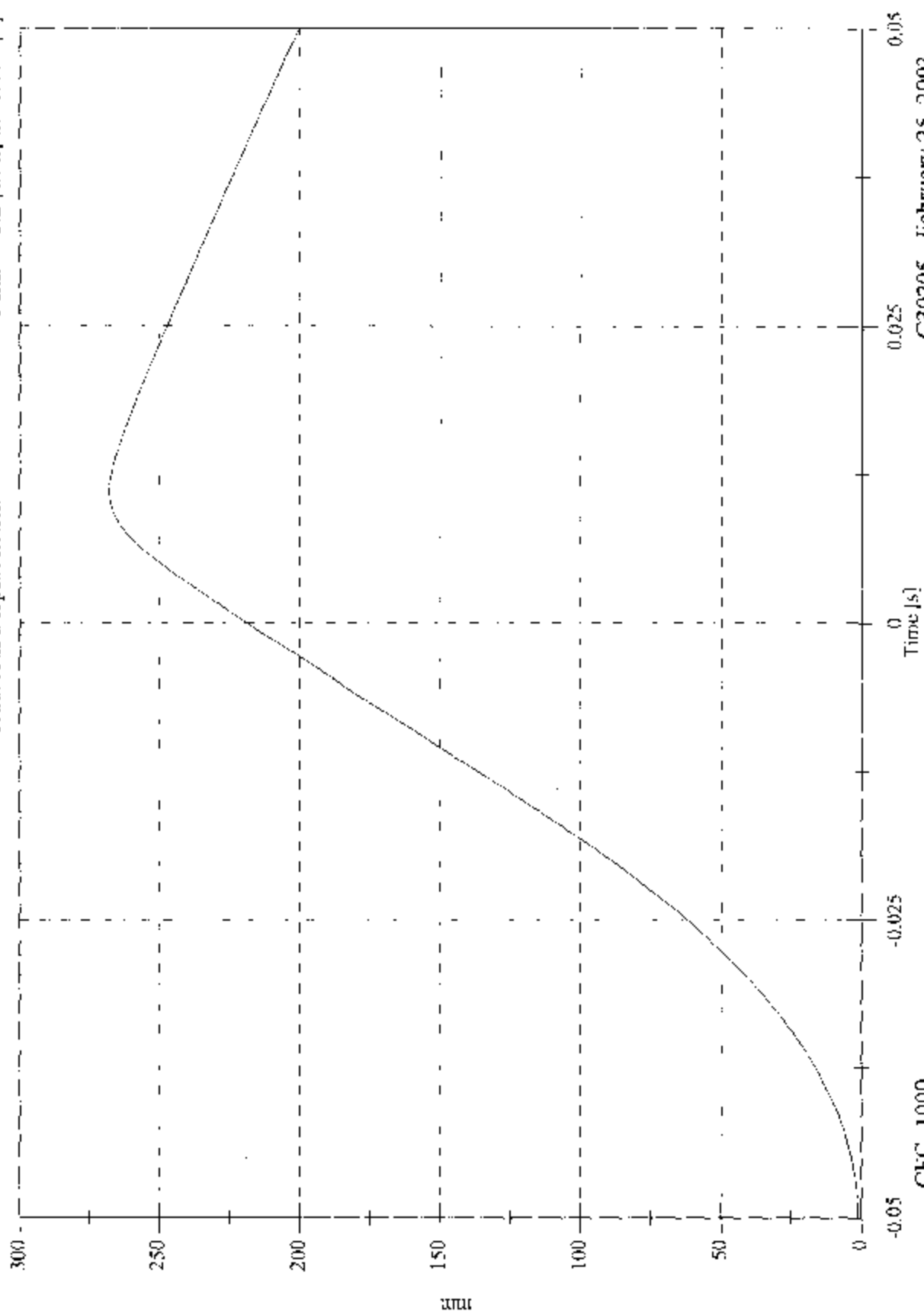


FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Max: 268.2 [mm] at 0.011 [s]

Min: 1.2 [mm] at -0.050 [s]

Headform Displacement



CFC_1000

Time [s]

C30205 - February 25, 2003



Figure 1 PRETEST APS

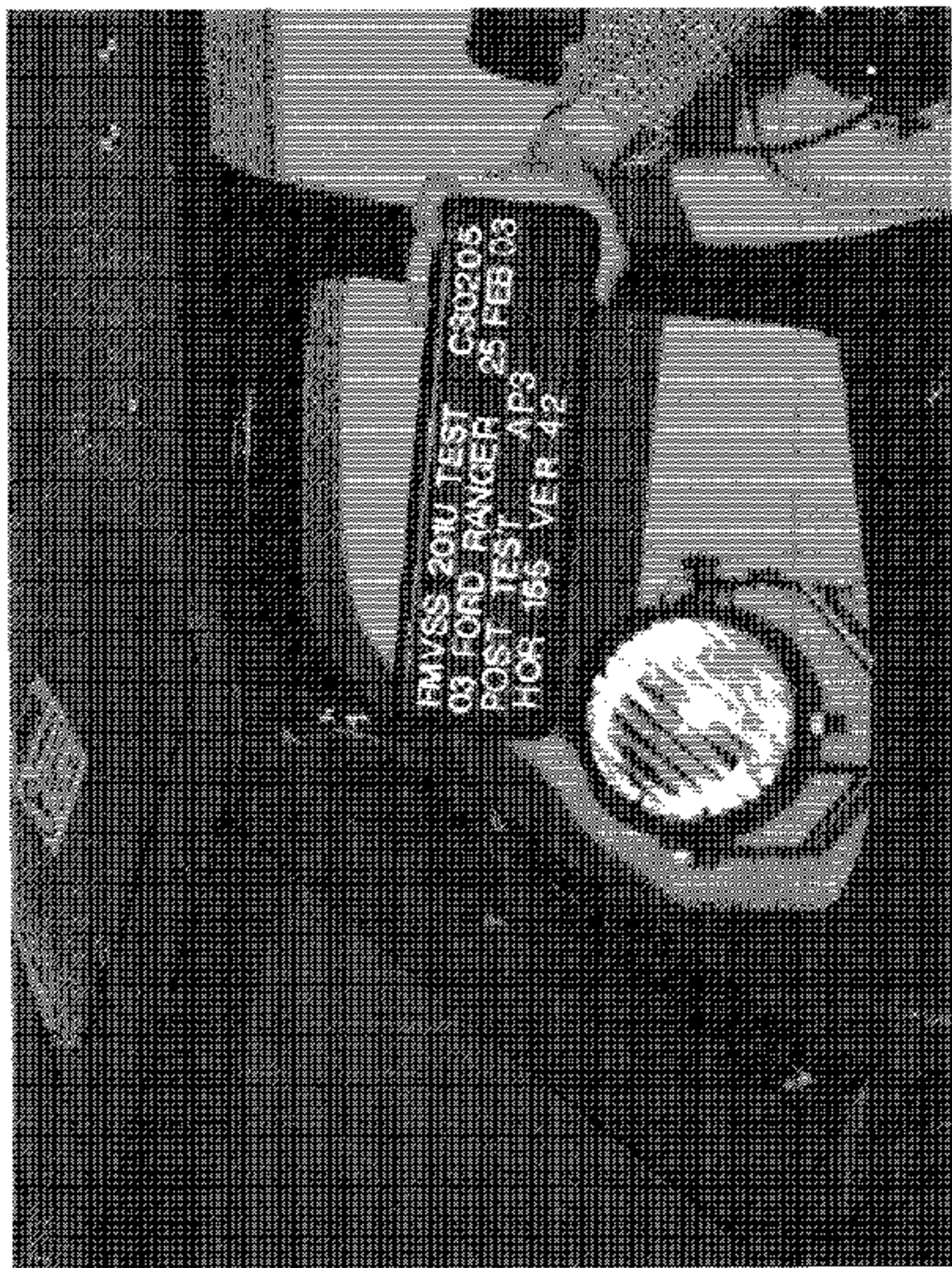


Figure POST-TEST AP3

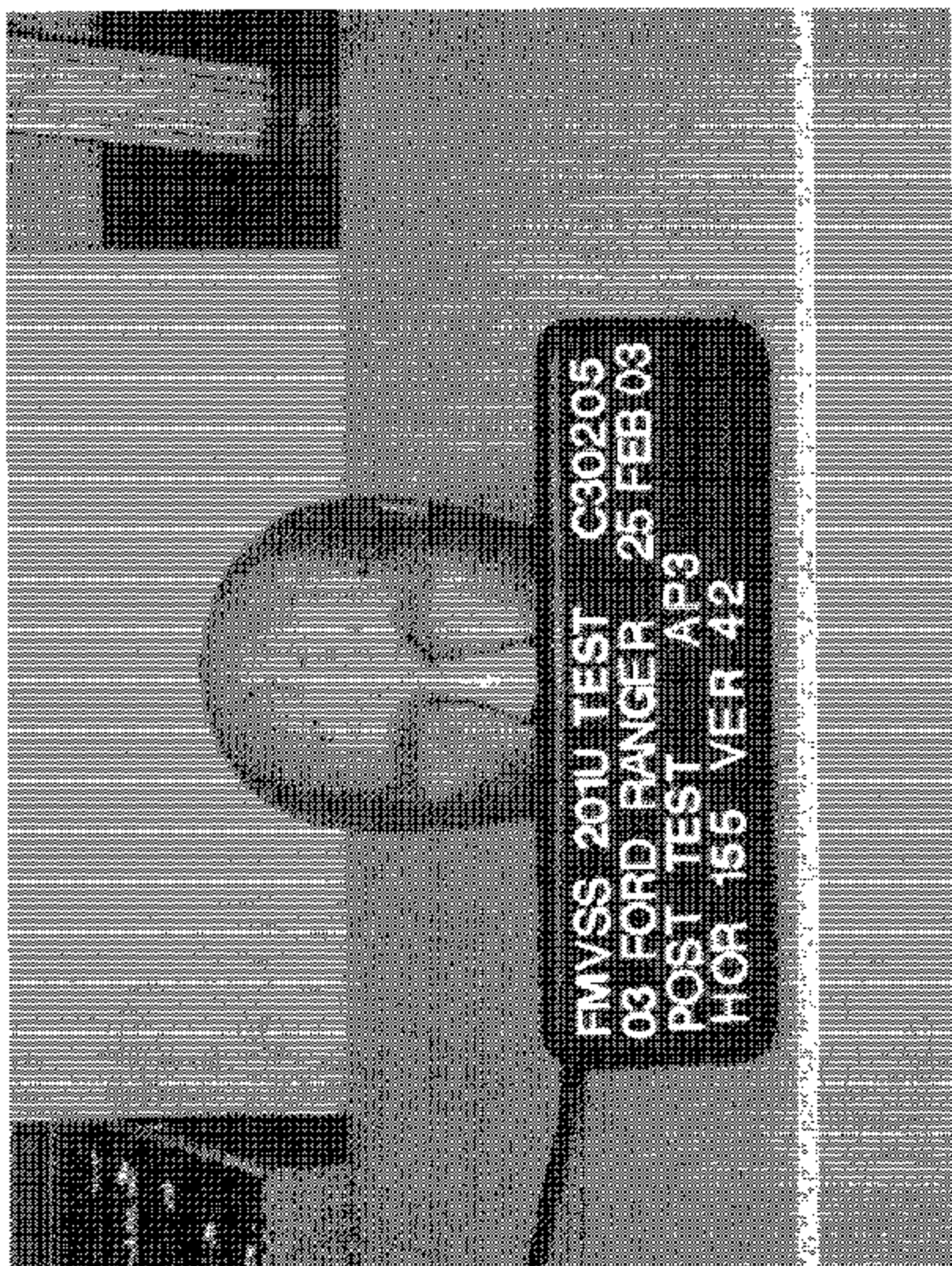


Figure - AP3 HEADFORM

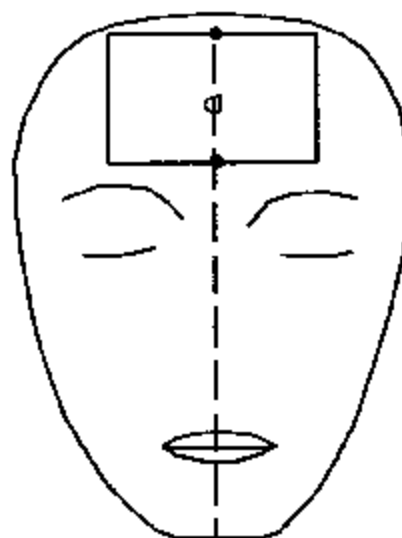
Year/Make/Model/Body Style: 2003 Ford Ranger XLT Supercab
 Vehicle Body Color: Blue VTN: 1FTYR44V43PA35111
 Vehicle NHTSA No.: C30205 Month & Year of Manufacture: 10/2002

Test Number: 2 Test Date: February 25, 2003
 Target Location: A-PILLAR Target Code: API
 Horizontal Impact Angle: 151 ° Vertical Impact Angle: 50 °
 Ambient Temperature: 23 °C Time of Impact: 11:45
 Headform Number: 0642

Impact Point:

Description:

Description: From lower midpoint				
On centerline	33	mm up		
On centerline	0	-	mm right	- mm left



Free Motion HIC: 622.5 HIC(d): 636.1
 Impact Velocity (kph): 23.56 HIC1 2.2 msec HIC2 9.6 msec

Post-Test Comments:

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

FMII Headform 0642

Location: AP1

Test Date: February 25, 2003

Work File: AP1

TEST RESULTS

Lab Temperature: 23 C

HiCd: 636.1

Lab Humidity: 11 %

1HC (36ms): 622.5

Velocity at Impact: 23.57 KPH

t1: 2.3 msec

t2: 9.8 msec

Free Flight Distance: 218.06 mm

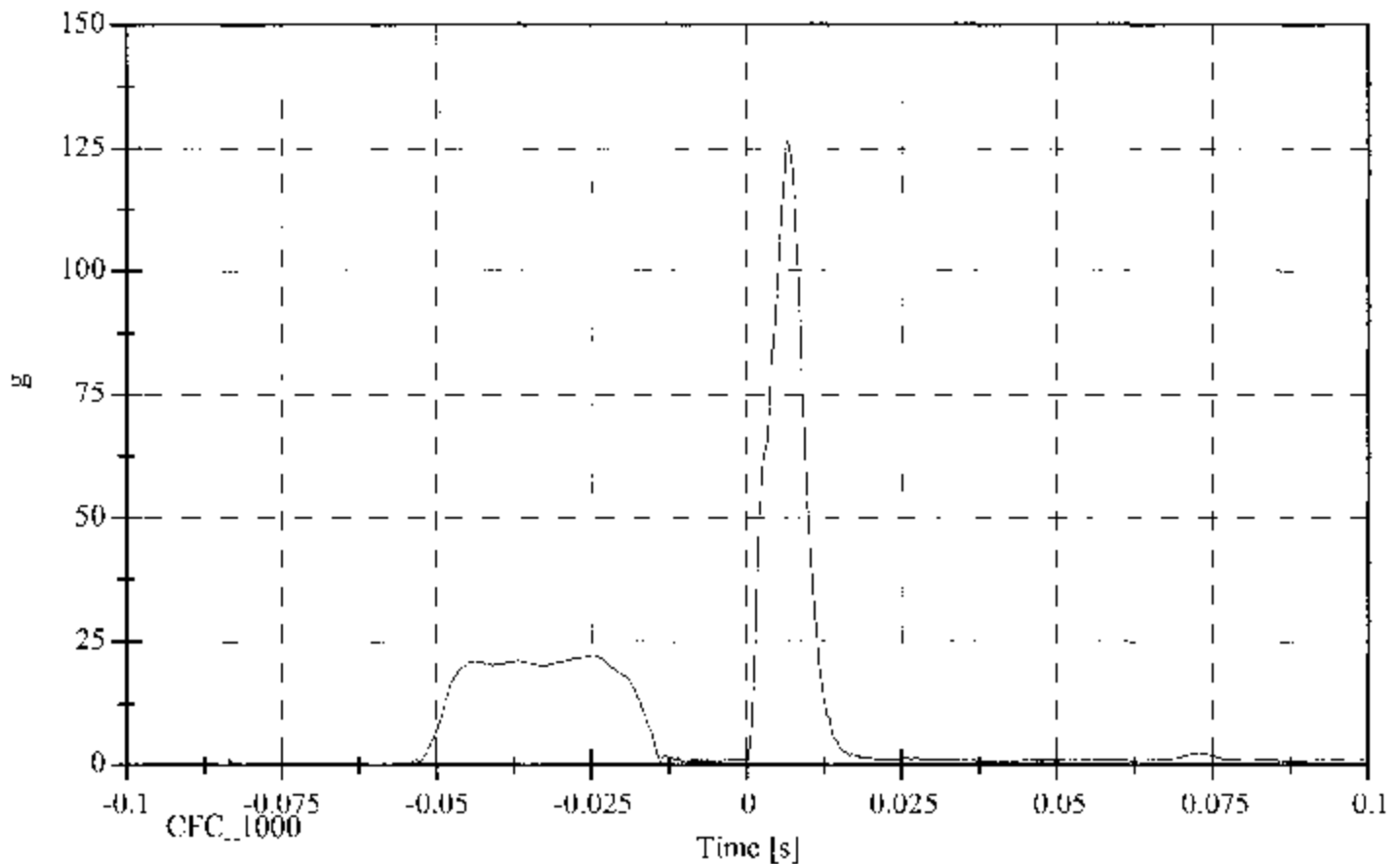
Duration: 7.4 msec

Average Acceleration: 8.2 g

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP
Headform Resultant

Max: 126.3 [g] at 0.007 [s]

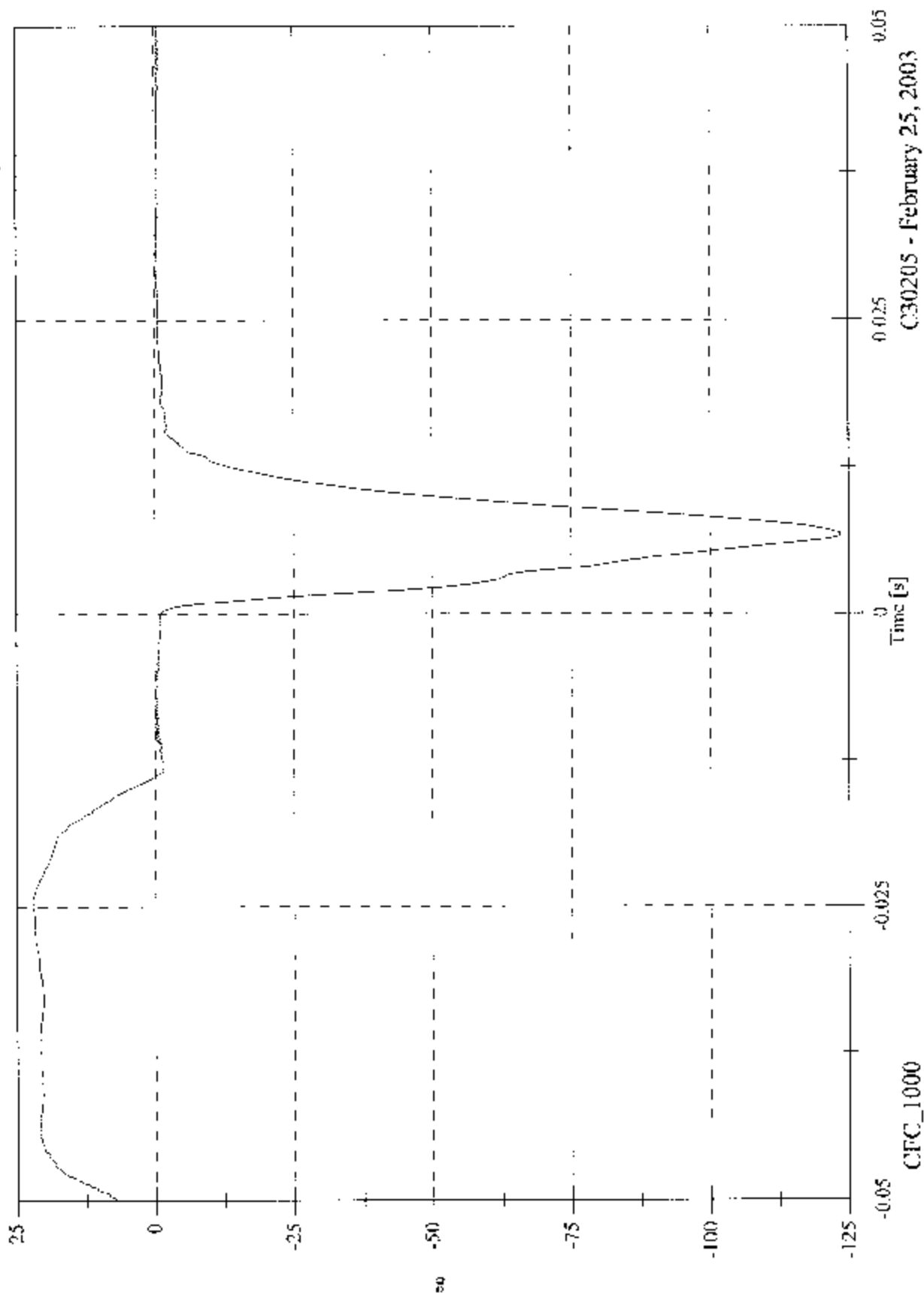
Min: 0.0 [g] at -0.086 [s]



FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP
 Headform X Acceleration

Max: 22.1 [g] at -0.025 [s]

Min: -123.7 [g] at 0.007 [s]

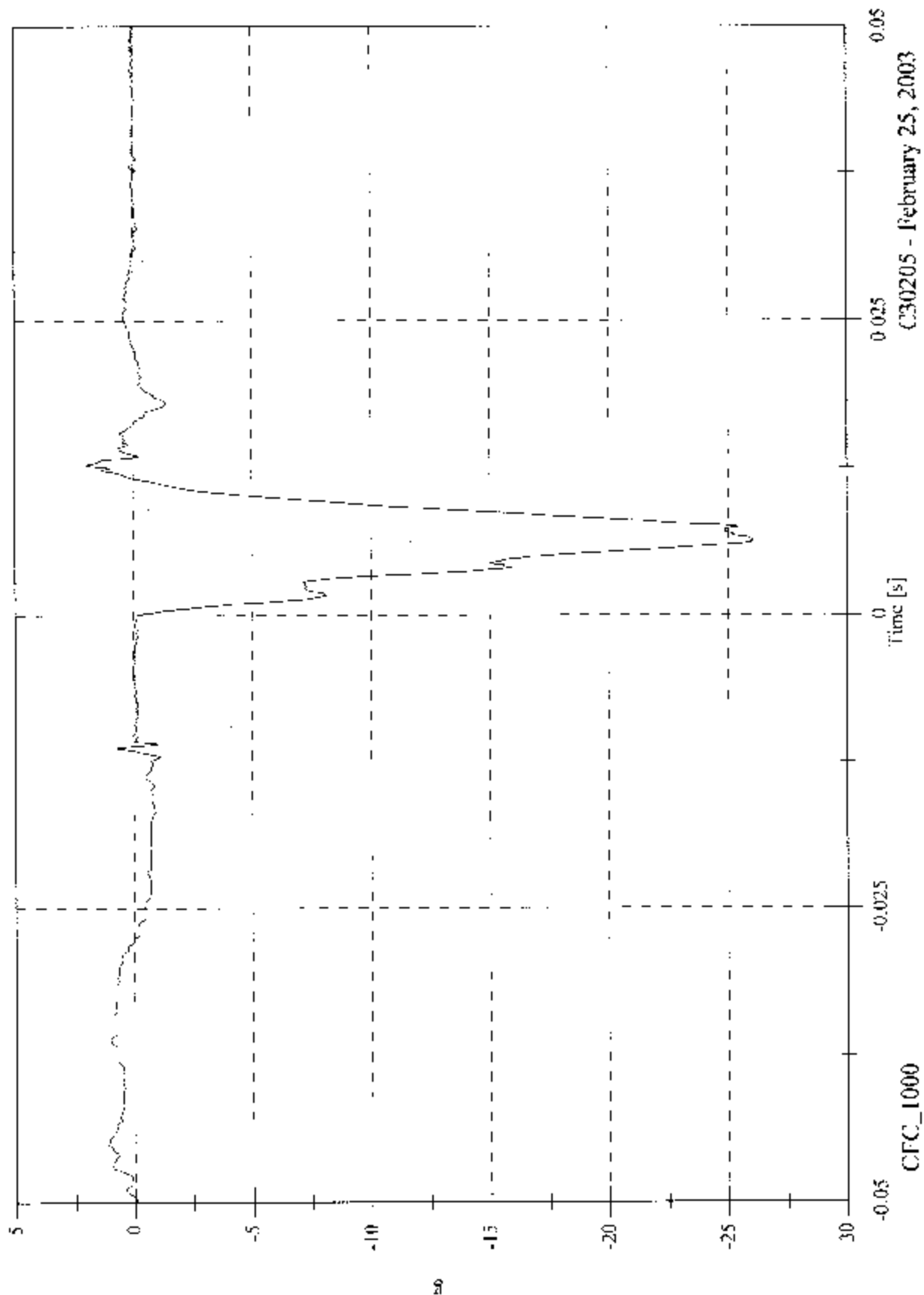


C30205 - February 25, 2003

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP
 Headform Y Acceleration

Max: 2.0 [g] at 0.013 [s]

Min: -26.1 [g] at 0.006 [s]



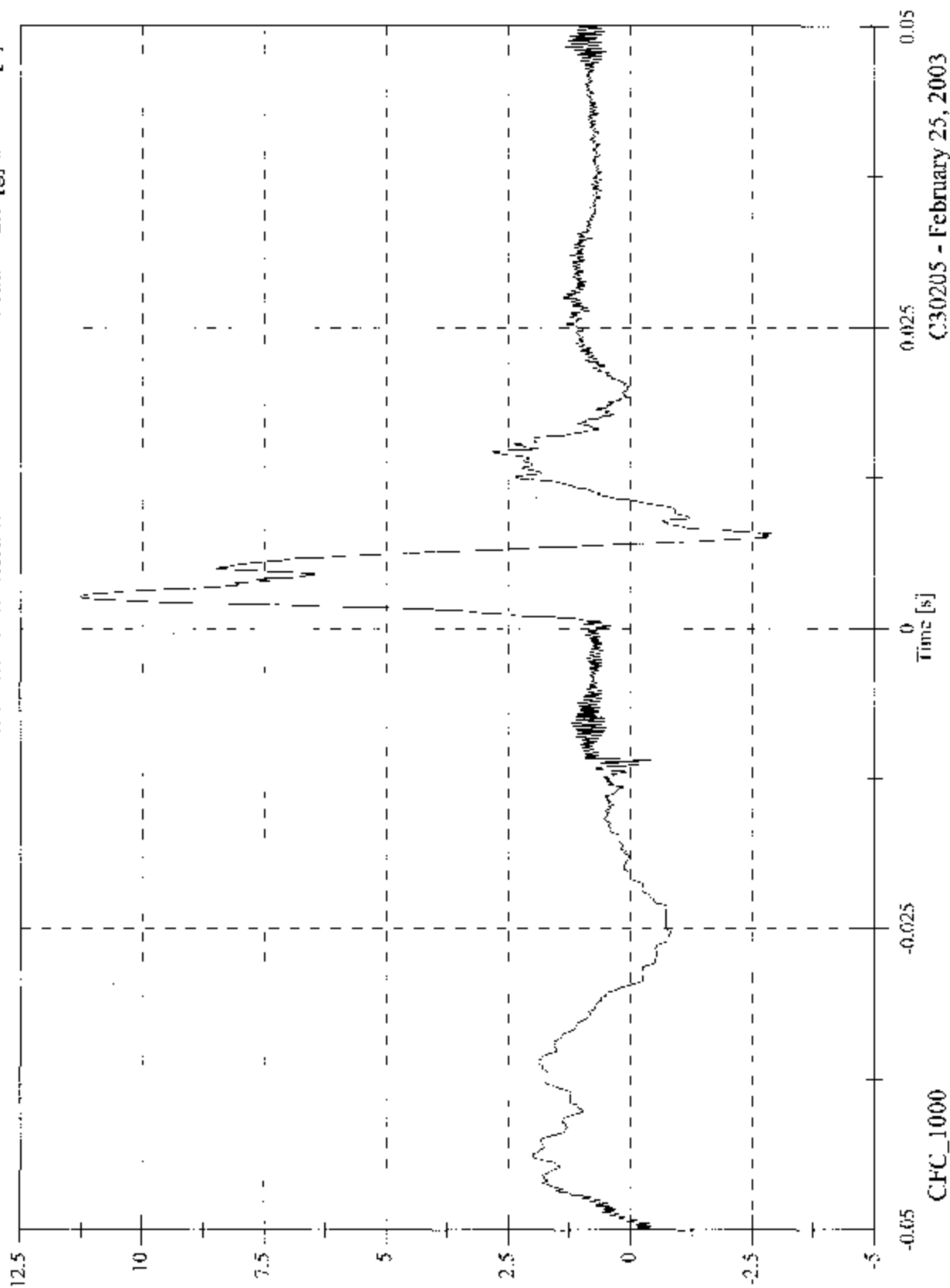
C30205 - February 25, 2003

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Headform 7. Acceleration

Max: 11.3 [g] at 0.003 [s]

Min: -2.9 [g] at 0.008 [s]



0.025 0.05

Time [s]

-0.025

-0.05

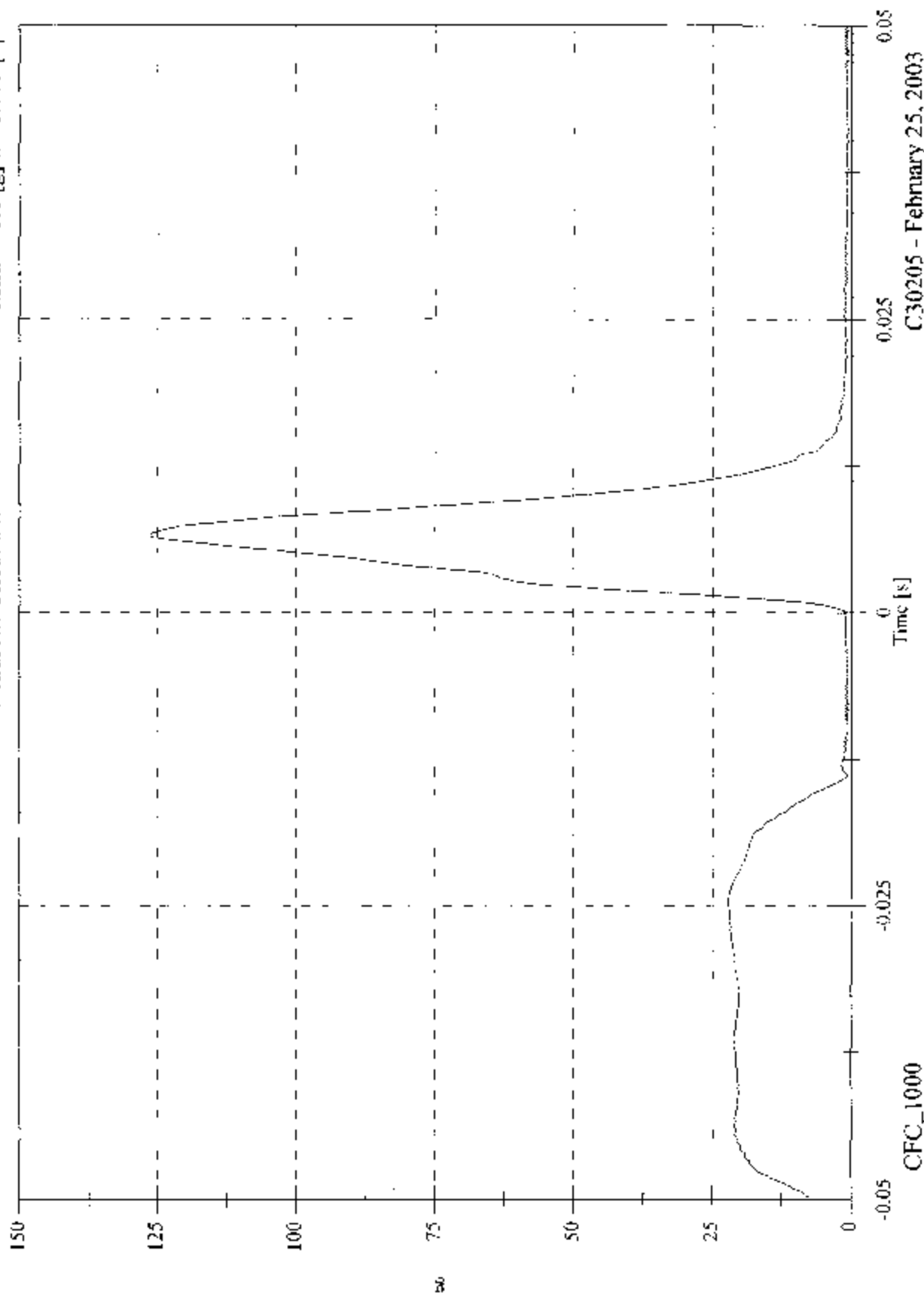
CFC_1000

C30205 - February 25, 2003

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Headform Resultant

Max: 126.3 [g] at 0.007 [s]
Min: 0.6 [g] at -0.008 [s]

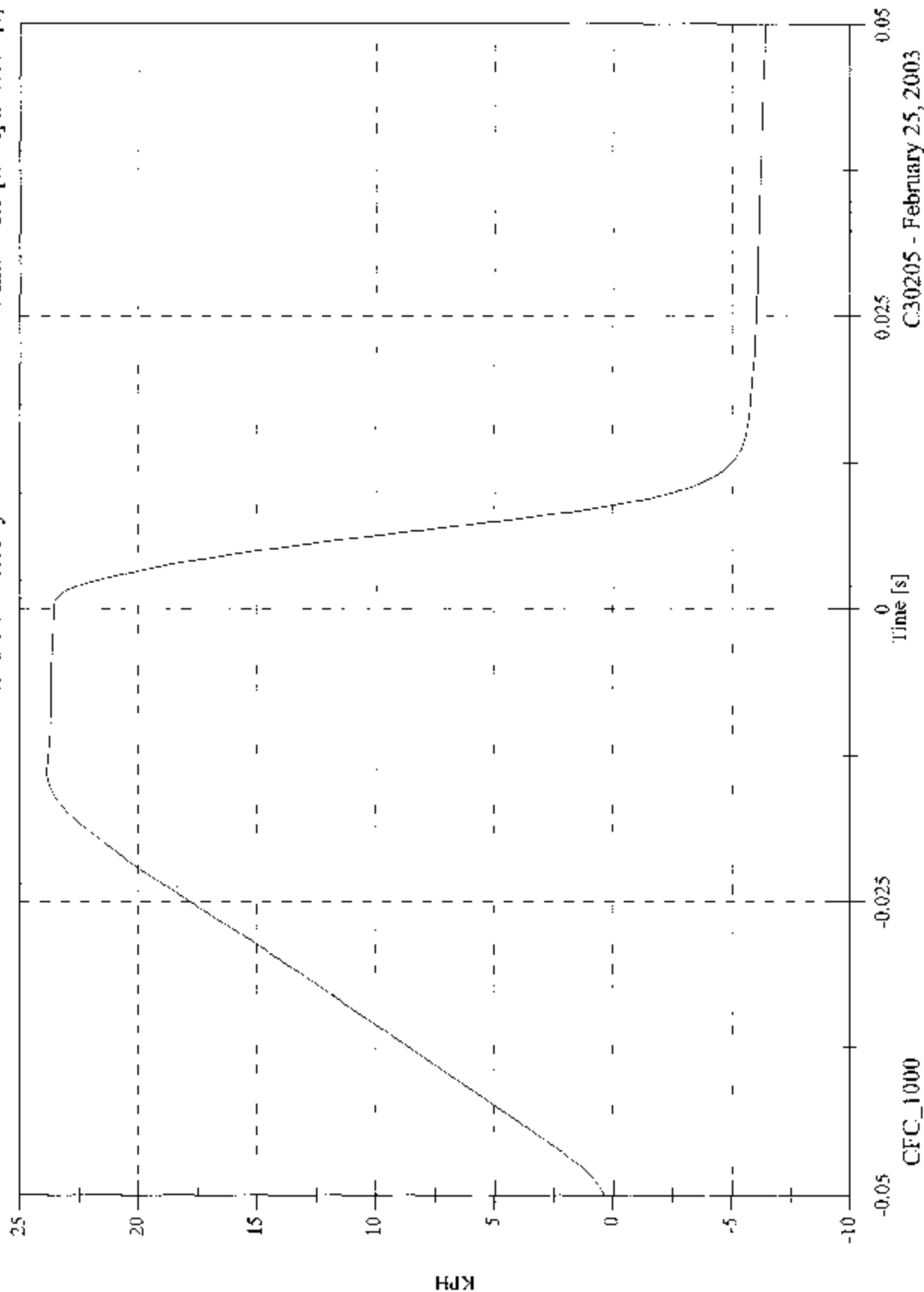


C30205 - February 25, 2003

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Max: 23.9 [KPH] at -0.014 [s]
 Min: -6.5 [KPH] at 0.050 [s]

Headform Velocity



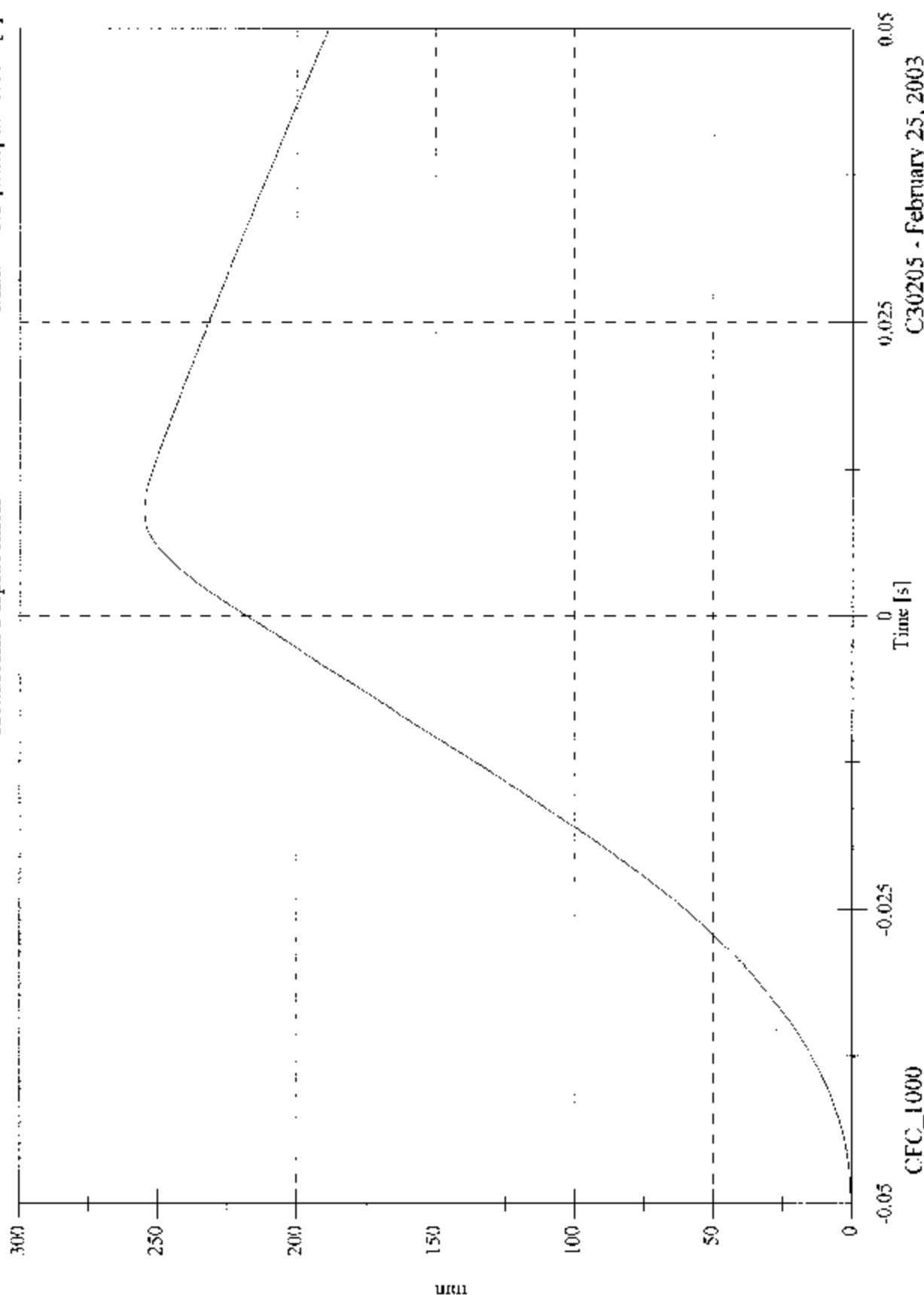
C30205 - February 25, 2003

FMVSS 2010 IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Headform Displacement

Max: 254.9 [mm] at 0.009 [s]

Min: 0.3 [mm] at -0.050 [s]



CFC_1000

Time [s]

C30205 - February 25, 2003

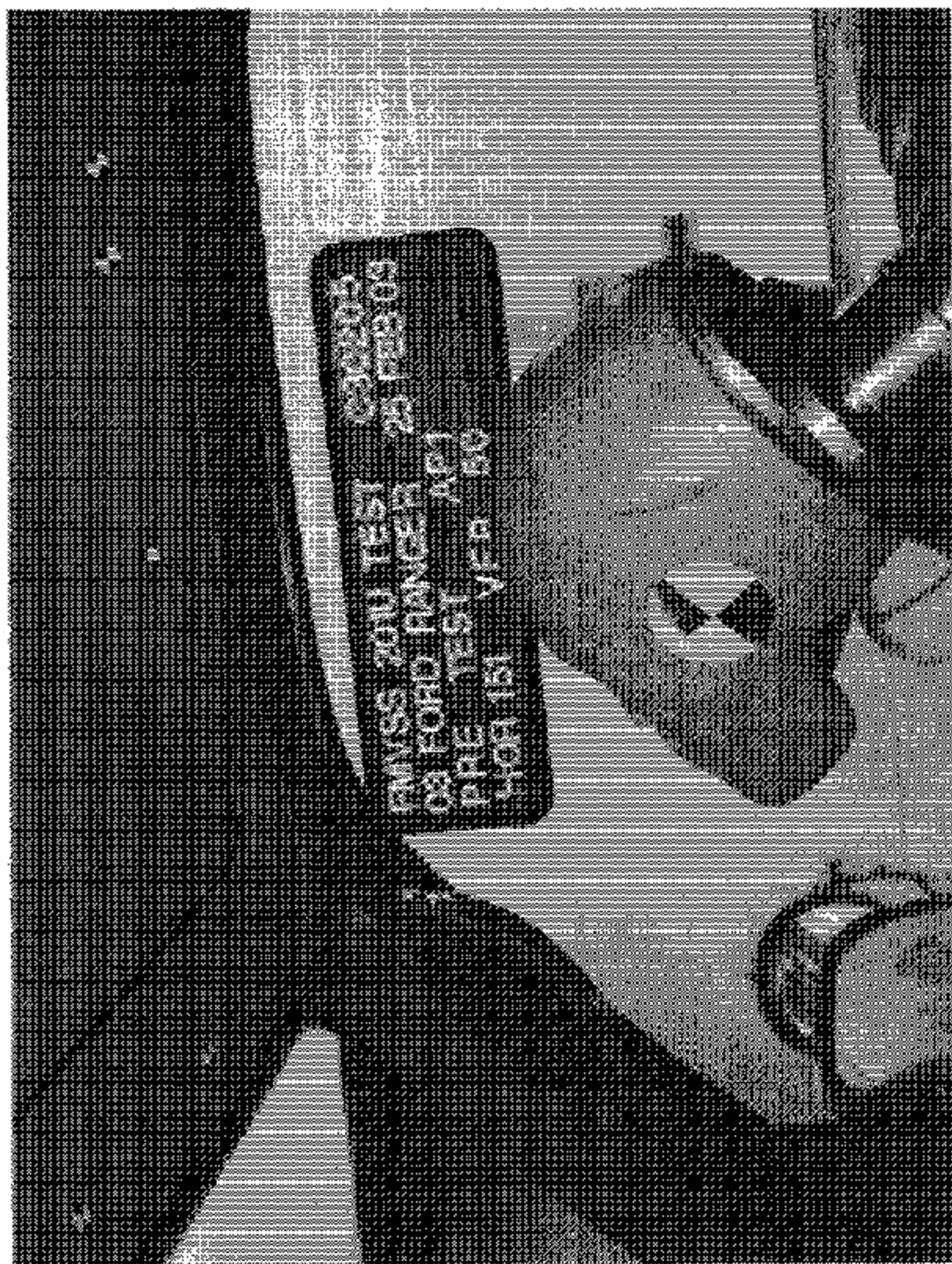


Figure : PRE-TEST API



Figure : POST-TEST API

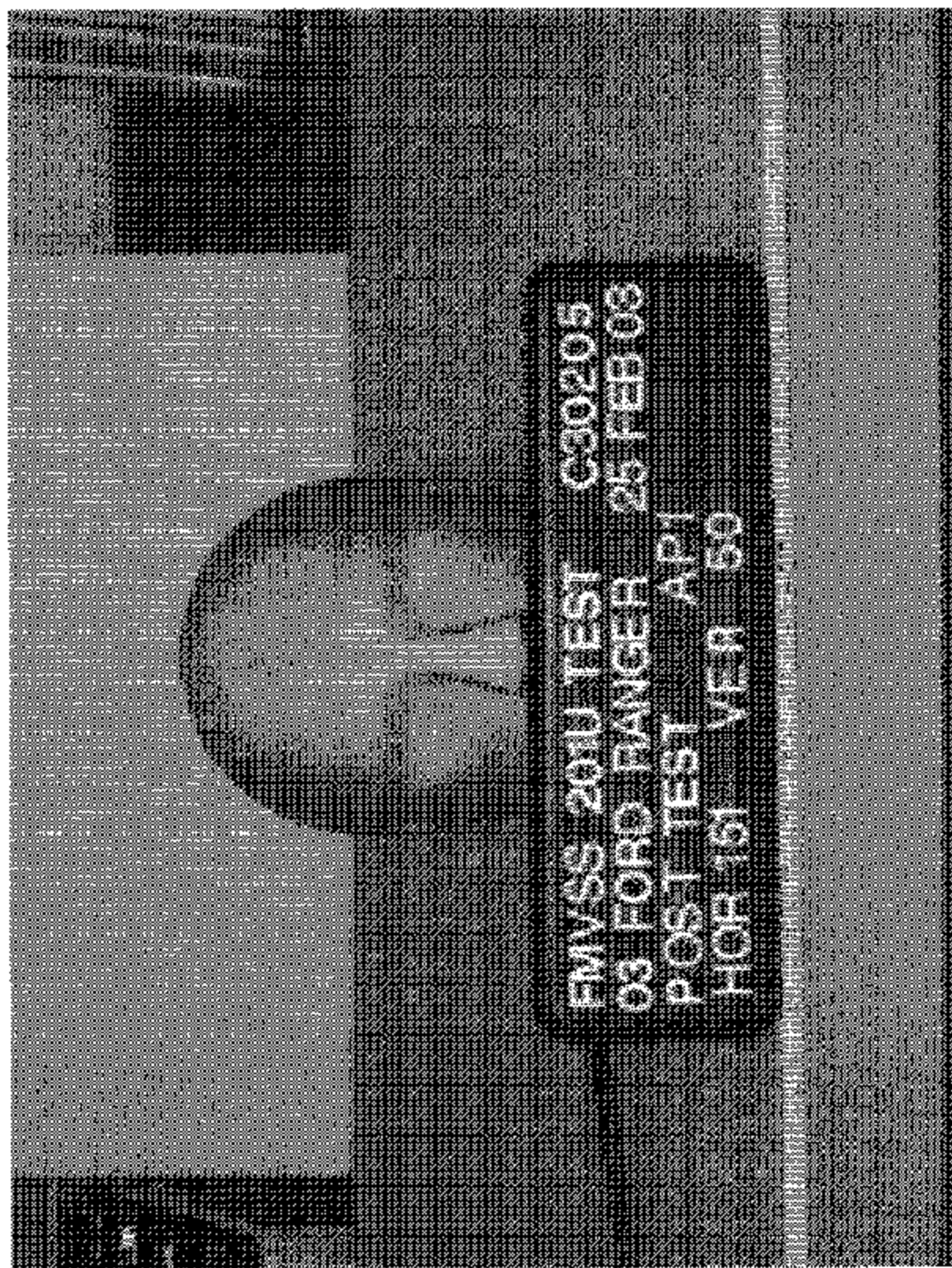


Figure : API HEADFORM

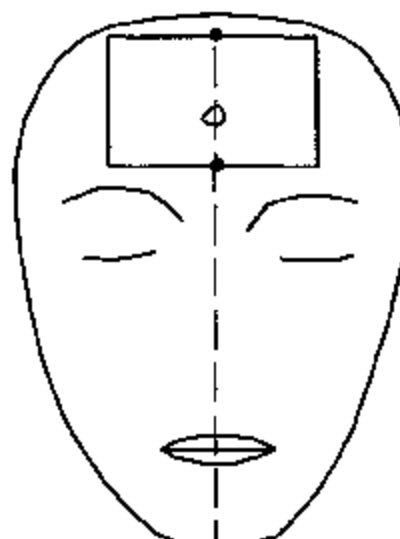
Year/Make/Model/Body Style: 2003 Ford Ranger XLT Supercab
 Vehicle Body Color: Blue VIN: 1FTYR44V43PA35111
 Vehicle NHTSA No.: C30205 Month & Year of Manufacture: 10/2002

Test Number: 3 Test Date: February 25, 2003
 Target Location: SIDE RAIL Target Code: SR2B
 Horizontal Impact Angle: 90 ° Vertical Impact Angle: 31 °
 Ambient Temperature: 23 °C Time of Impact: 1:30
 Headform Number: 0805

Impact Point:

Description:

Description:	From lower midpoint			
On centerline	25	mm up		
On centerline	0	-	mm right	- mm left



Free Motion HIC: 576.8 HIC(d): 601.6
 Impact Velocity (kph): 23.47 HIC1: 2.9 msec HIC12: 11.9 msec

Post-Test Comments:

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

FMH Headform 805

Location: SR2B

Test Date: February 25, 2003

Work File: SR2B

-----TEST RESULTS-----

Lab Temperature: 23 C

HICd: 601.6

Lab Humidity: 11 %

HIC (36ms): 576.8

Velocity at Impact: 23.47 KPH

t1: 2.9 msec

t2: 11.9 msec

Free Flight Distance: 217.40 mm

Duration: 8.9 msec

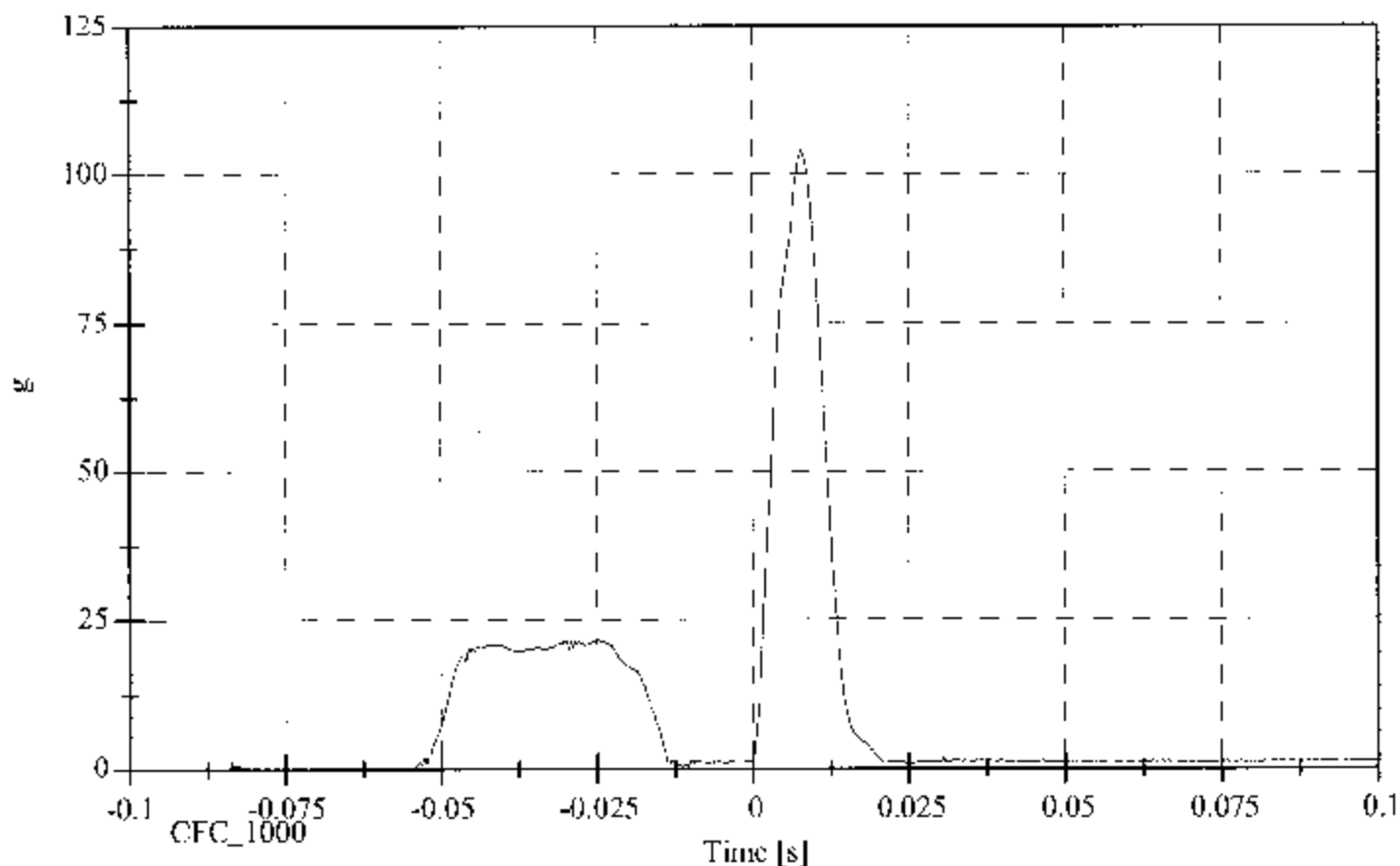
Average Acceleration: 8.6 g

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Max: 104.0 [g] at 0.008 [s]

Min: 0.0 [g] at -0.093 [s]

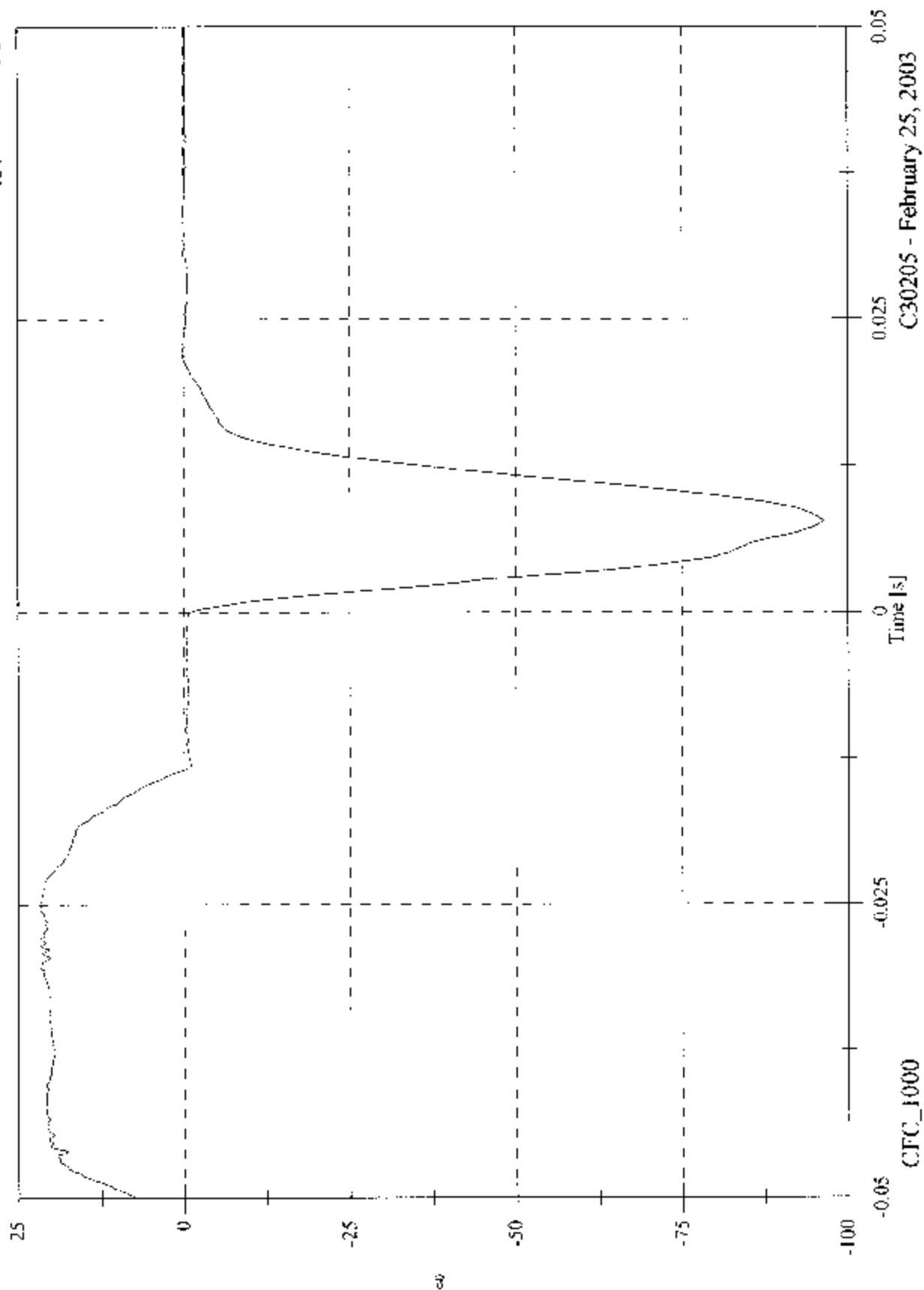
Headform Resultant



FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP
Headform X Acceleration

Max: 21.7 [g] at -0.025 [s]

Min: -96.3 [g] at 0.008 [s]



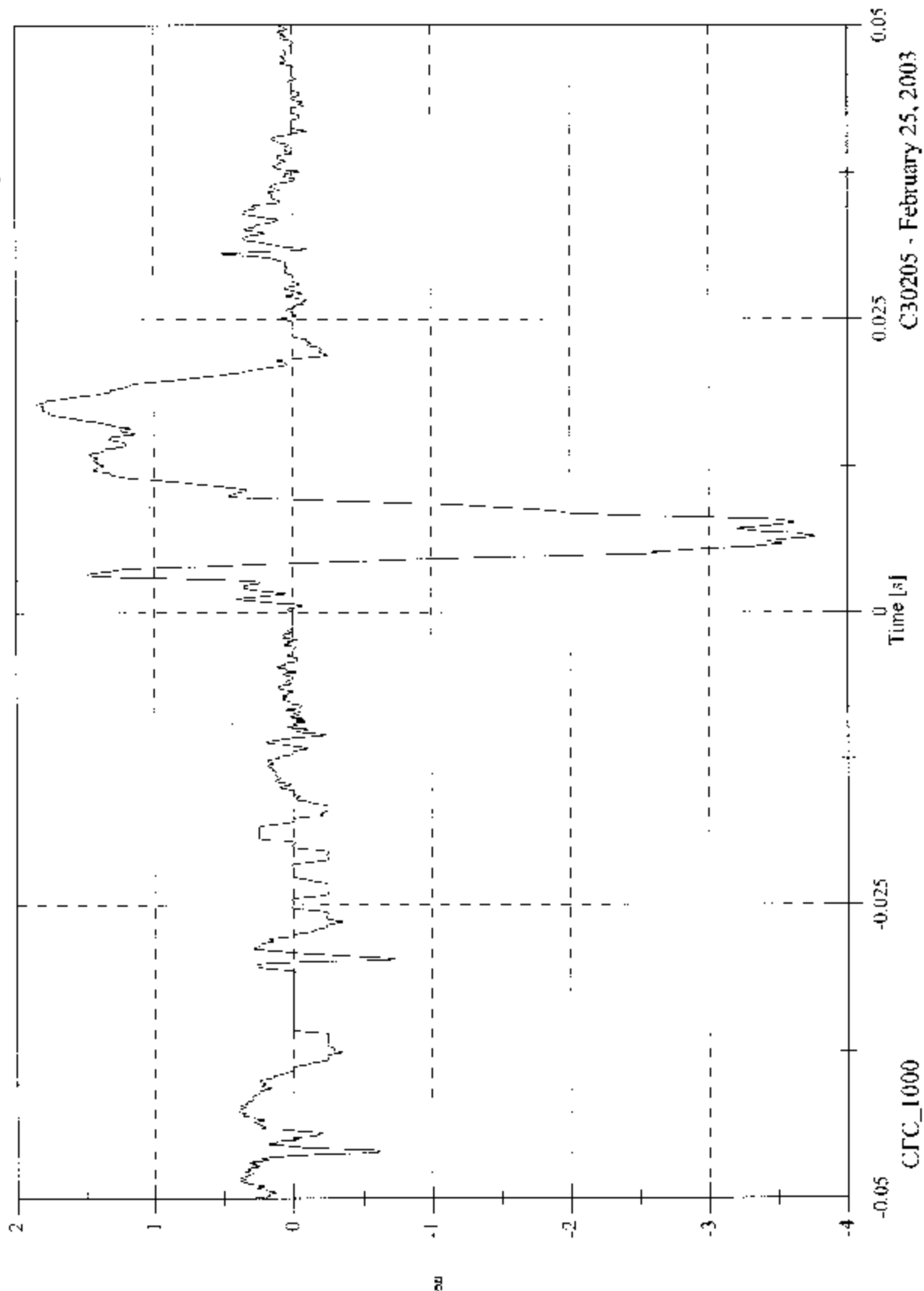
C30205 - February 25, 2003

FMVSS 201C IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Headform Y Acceleration

Max: 1.8 [g] at 0.018 [s]

Min: -3.8 [g] at 0.006 [s]

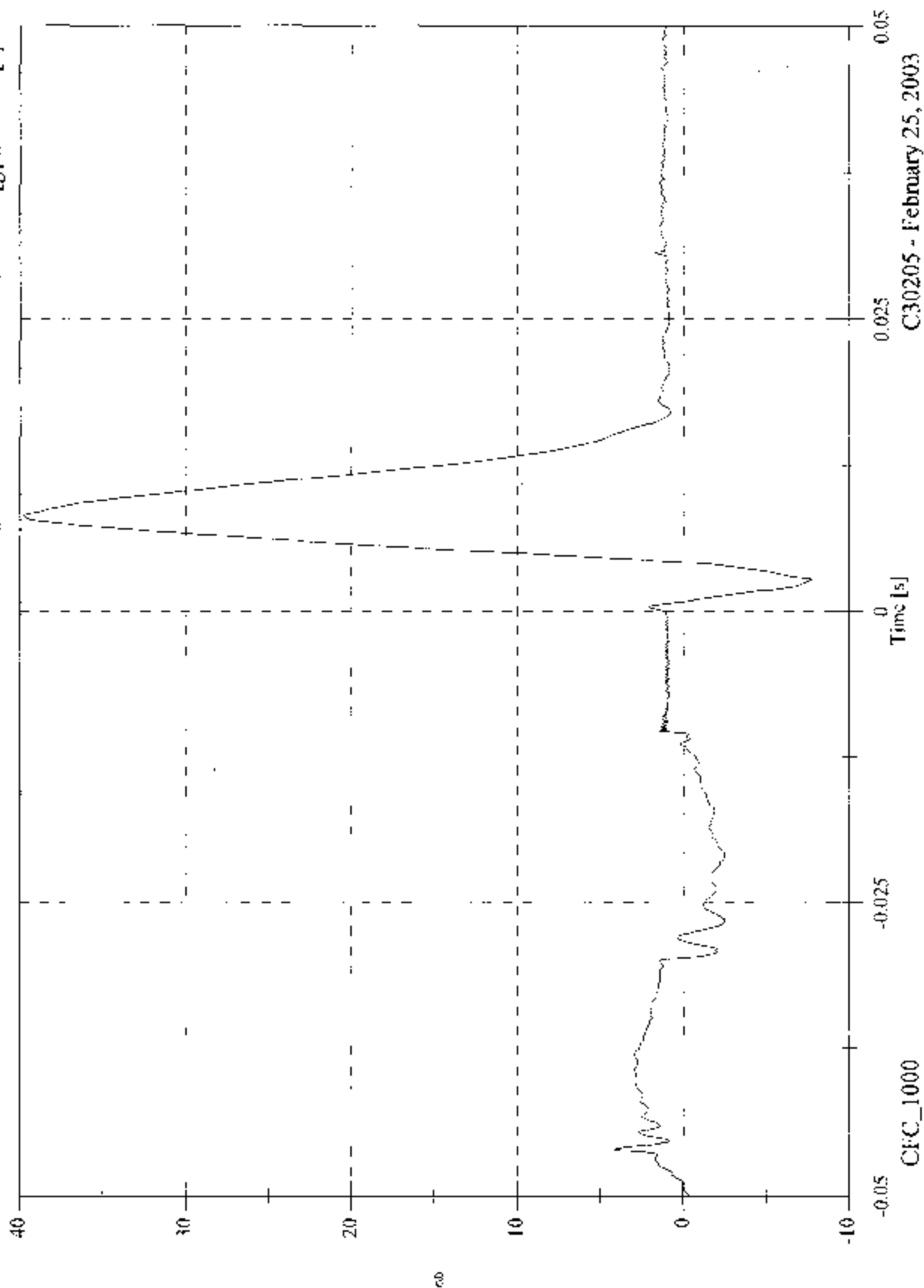


C30205 - February 25, 2003

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Headform Z Acceleration

Max: 39.8 [g] at 0.008 [s]
Min: -7.7 [g] at 0.003 [s]



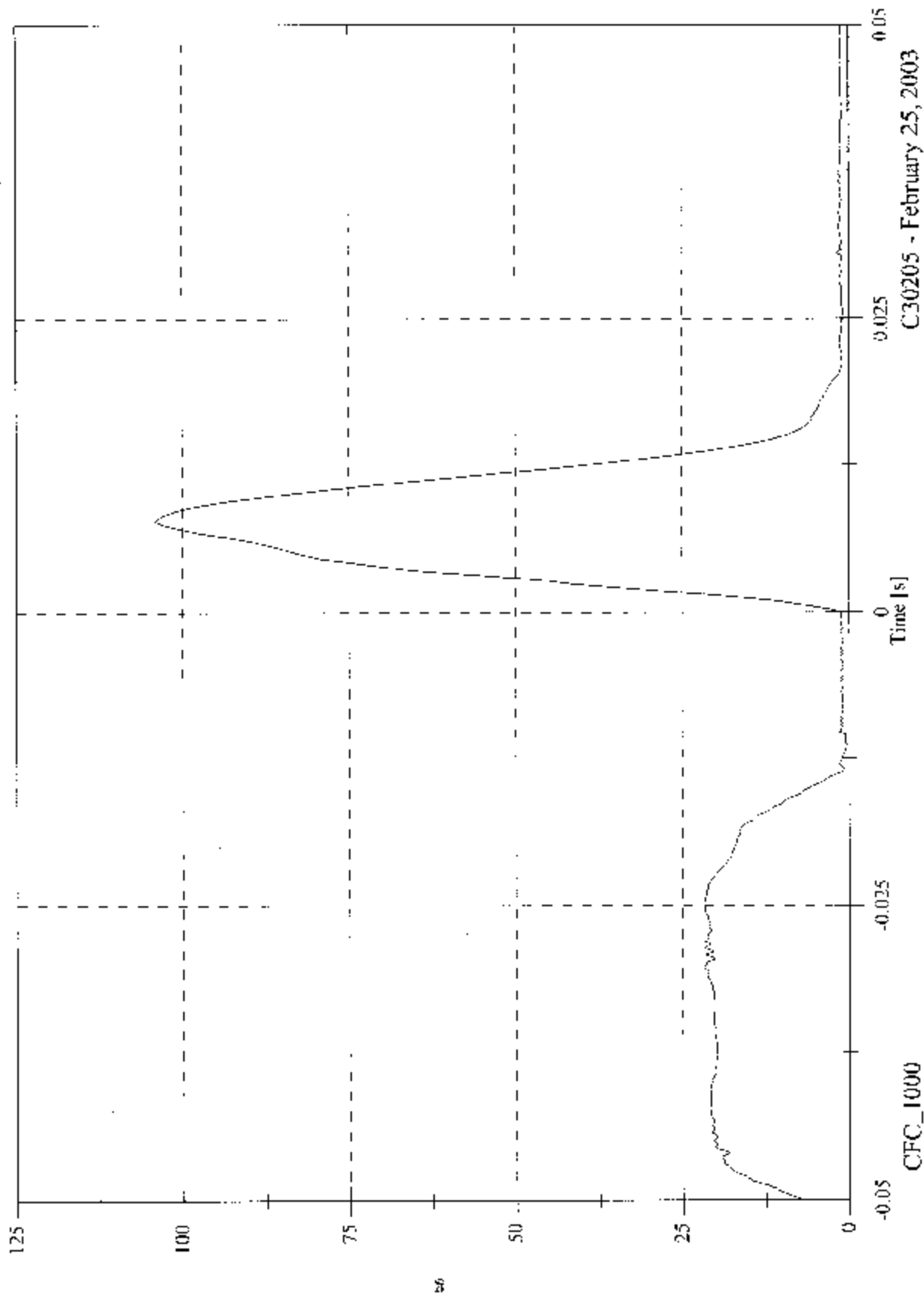
C30205 - February 25, 2003

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Headform Resultant

Max: 104.0 [g] at 0.008 [s]

Min: 0.4 [g] at -0.011 [s]

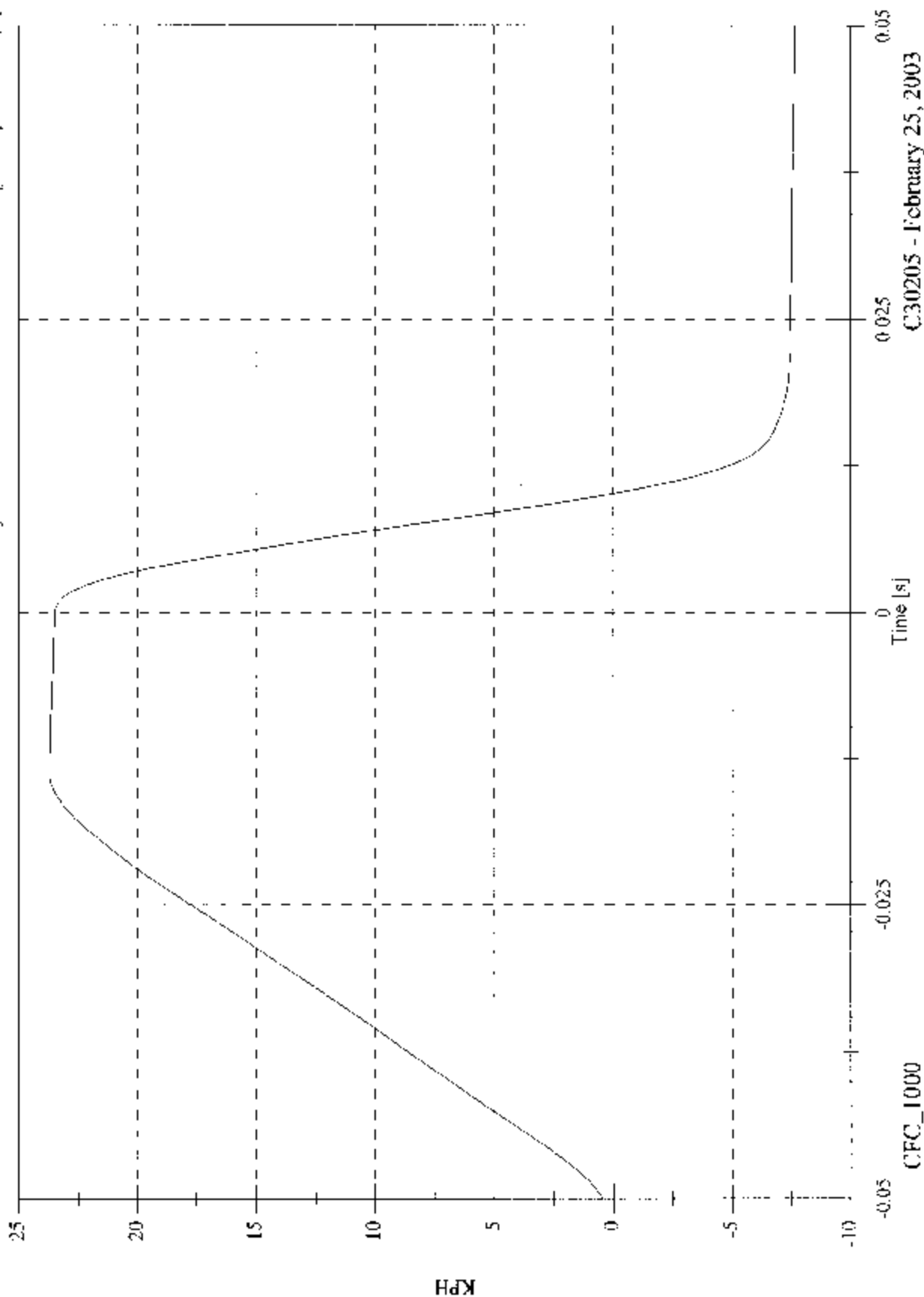


C30205 - February 25, 2003

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Max: 23.7 [KPH] at -0.013 [s]
 Min: -7.7 [KPH] at 0.050 [s]

Leadform Velocity



CPC_1000

Time [s]

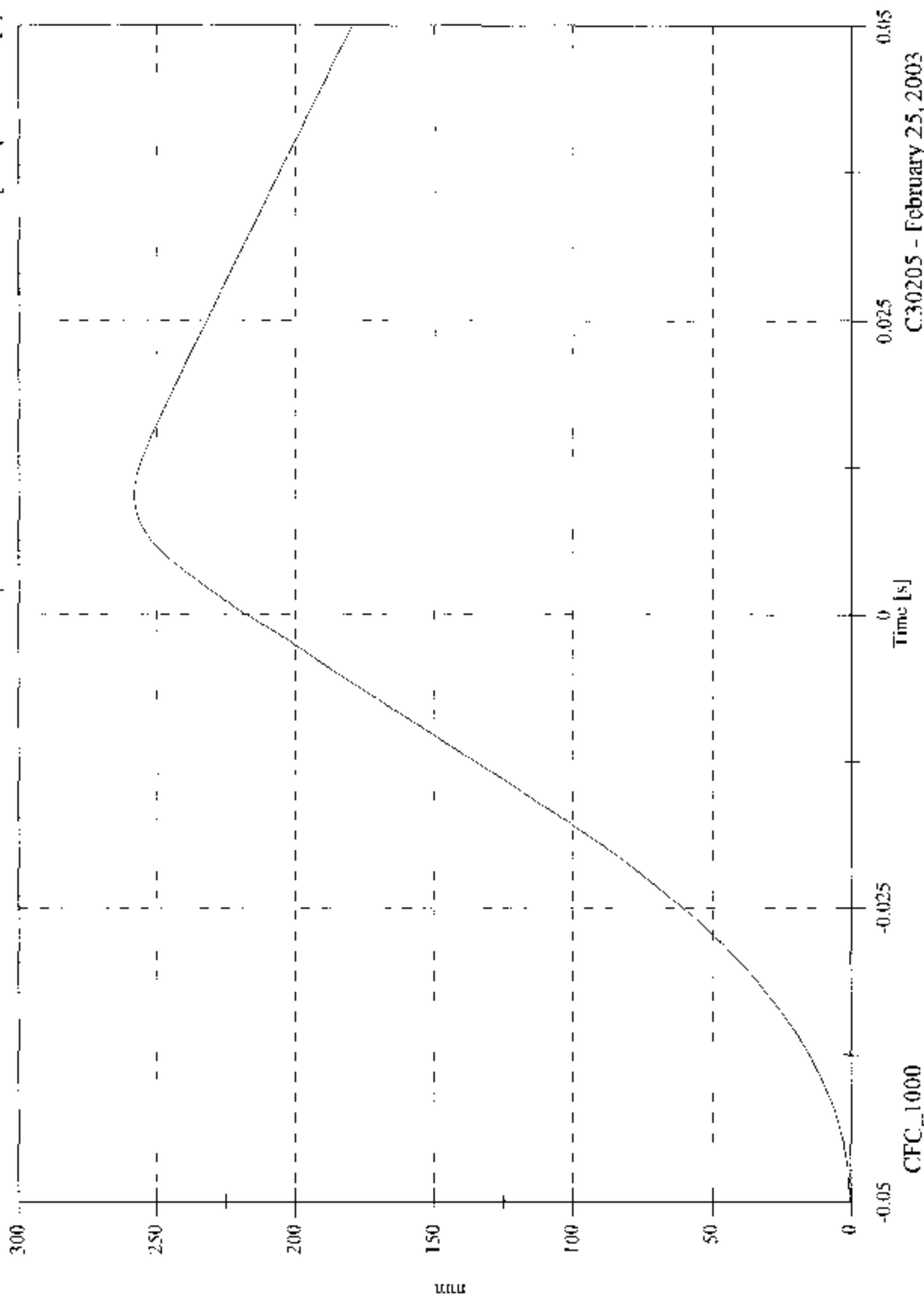
C30205 - February 25, 2003

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Max: 258.3 [mm] at 0.010 [s]

Min: 0.5 [mm] at -0.050 [s]

Headform Displacement



CFC_1000

Time [s]

C30205 - February 25, 2003

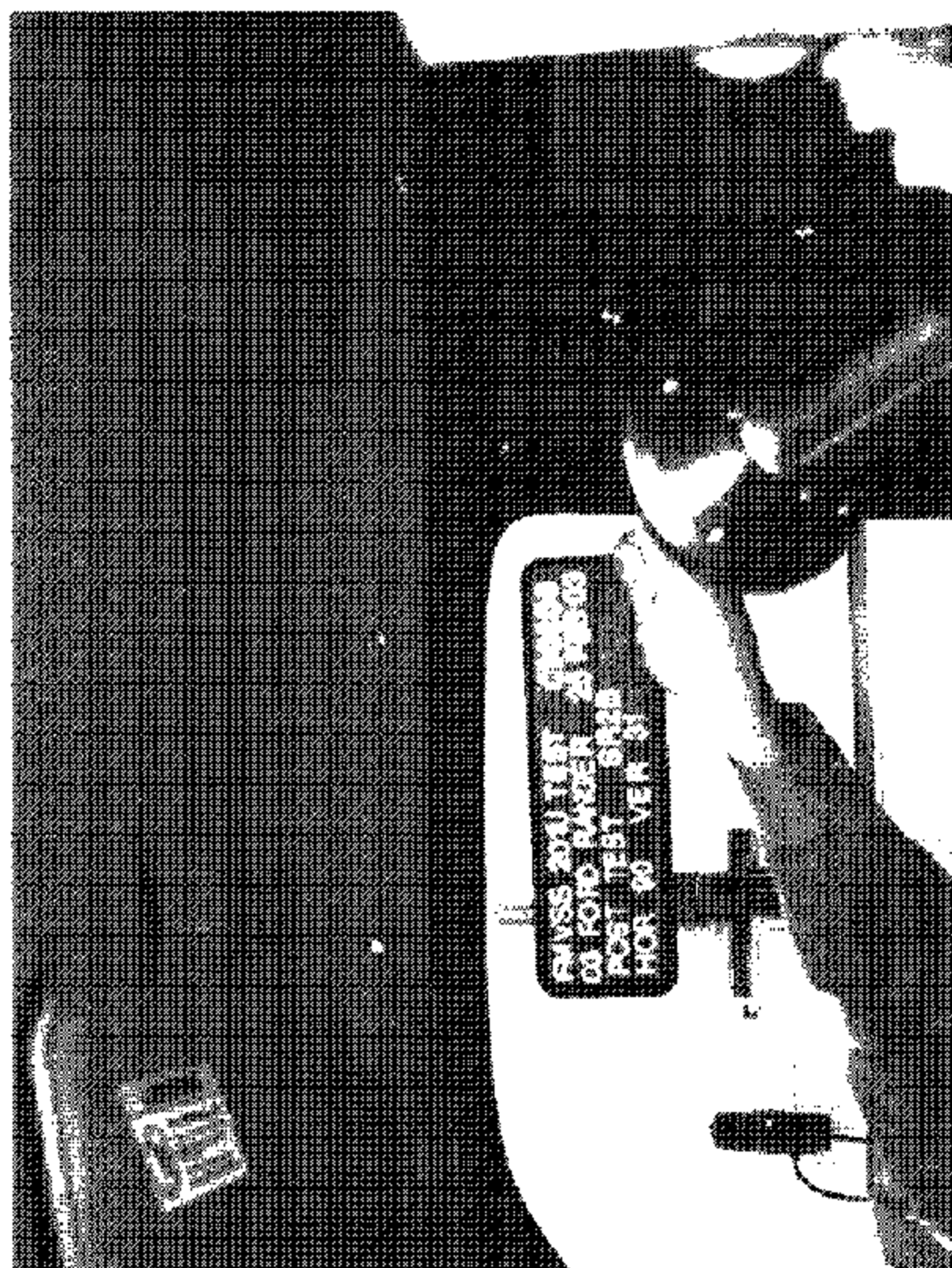


Figure POST-TEST SRIR

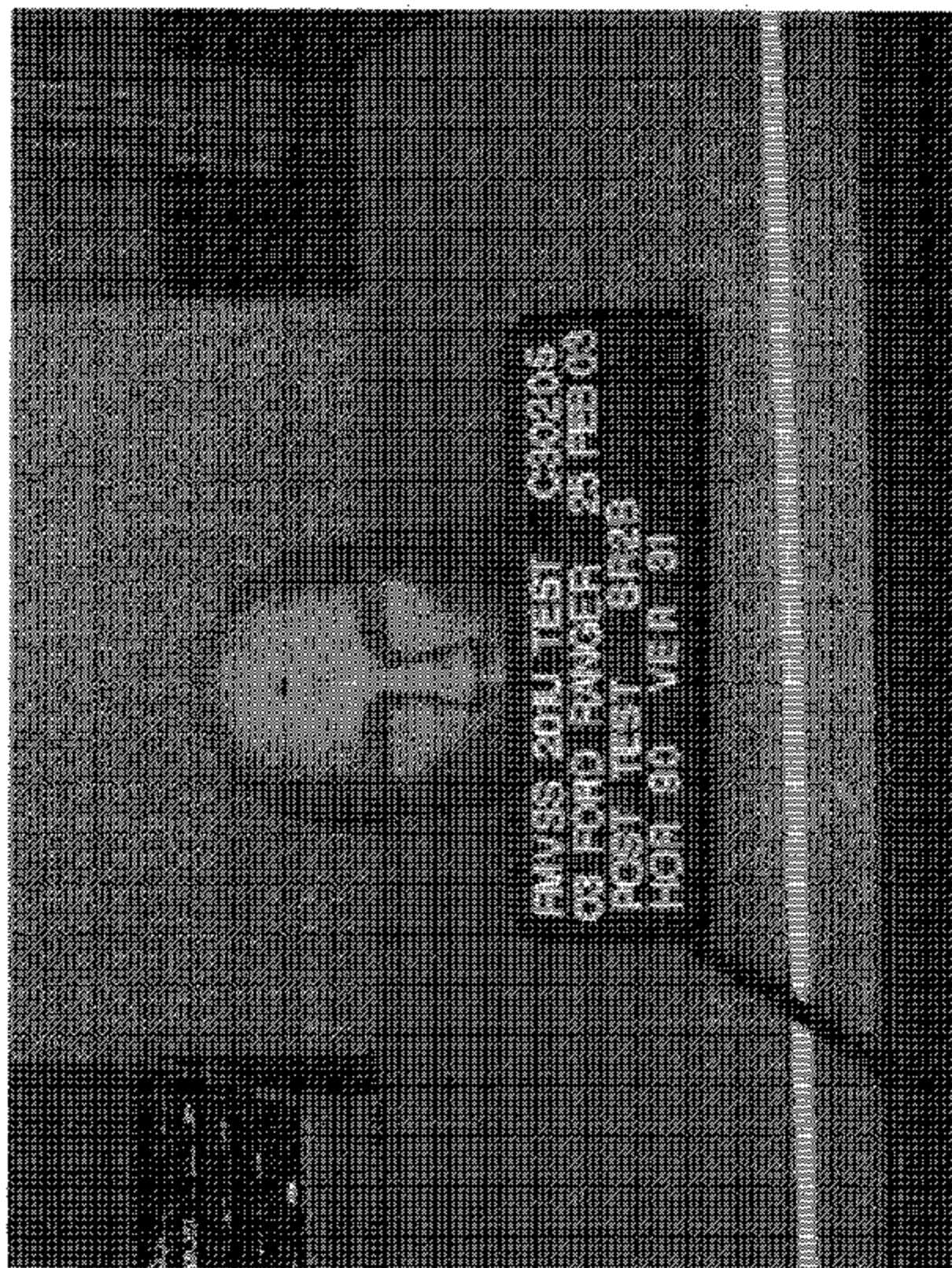


Figure : SR2B HEADFORM

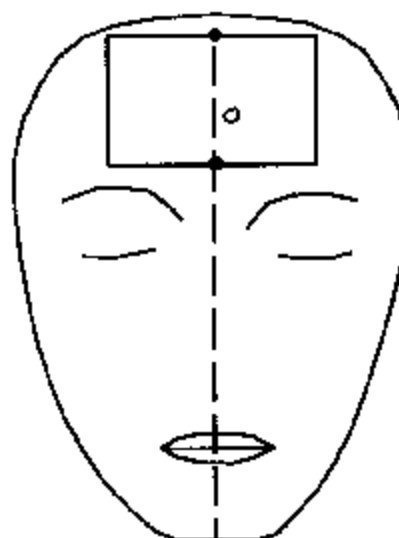
Year/Make/Model/Body Style: 2003 Ford Ranger XLT Supercab
 Vehicle Body Color: Blue VIN: 1FTYR44V43PA35111
 Vehicle NHTSA No.: C30205 Month & Year of Manufacture: 10/2002

Test Number: 4 Test Date: February 25, 2003
 Target Location: DOOR FRAME Target Code: DF4
 Horizontal Impact Angle: 90 ° Vertical Impact Angle: -10 °
 Ambient Temperature: 23 °C Time of Impact: 2:15
 Headform Number: 1255

Impact Point:

Description:

Description: From lower midpoint				
On centerline	26	mm up		
On centerline	4	-	mm right	x mm left



Free Motion HIC: 353.1 HIC(d): 432.8
 Impact Velocity (kph): 23.57 HIC1: 4.6 msec HIC2: 9.9 msec

Post-Test Comments:

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

FMH Headform 1255

Location: DF4

Test Date: February 25, 2003

Work File: BDF4

-----TEST RESULTS-----

Lab Temperature: 23 C

HICd: 432.8

Lab Humidity: 11 %

HIC (36ms): 353.1

Velocity at Impact: 23.57 KPH

t1: 4.6 msec

t2: 9.9 msec

Free Flight Distance: 206.08 mm

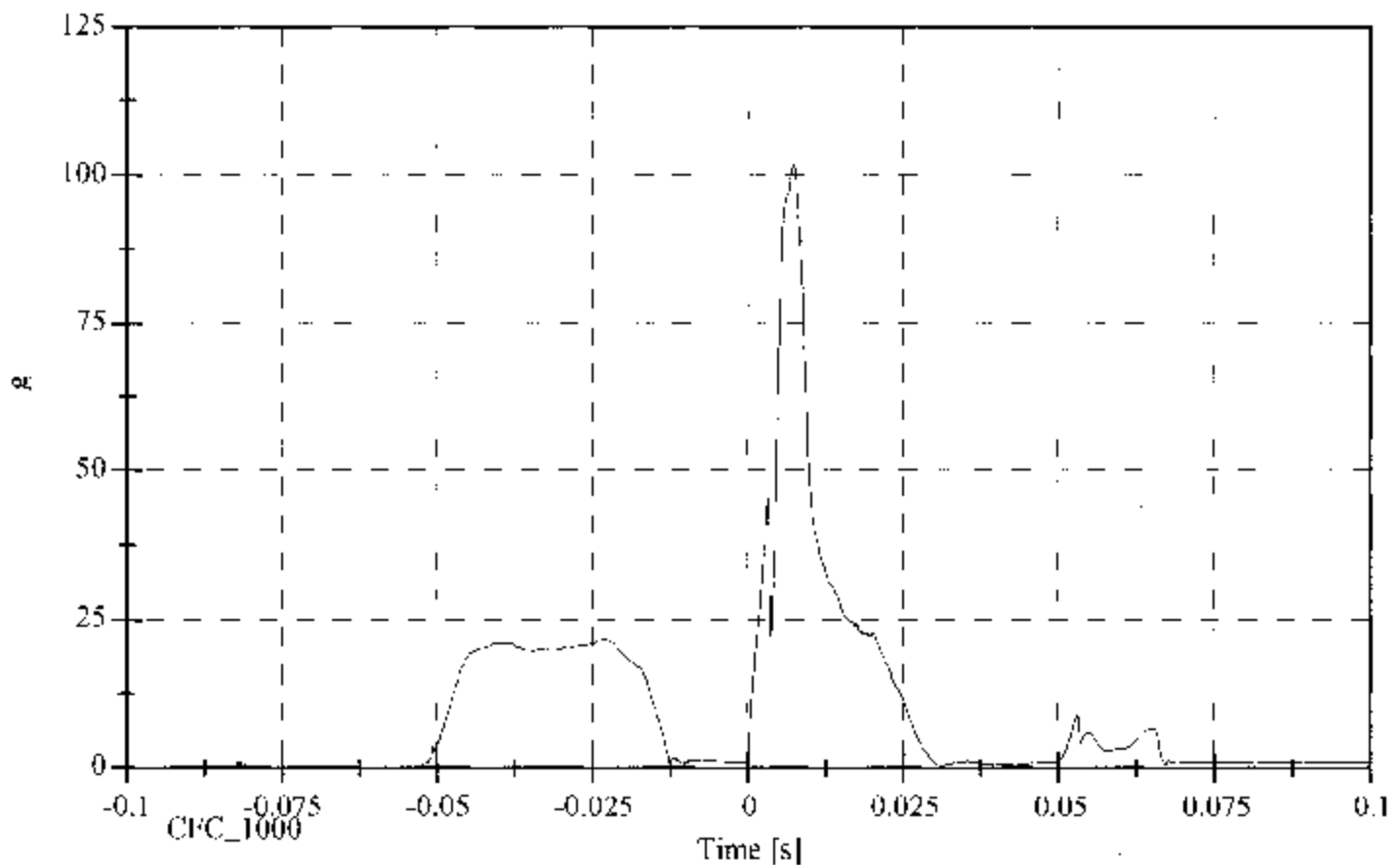
Duration: 5.2 msec

Average Acceleration: 9.0 g

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP
Headform Resultant

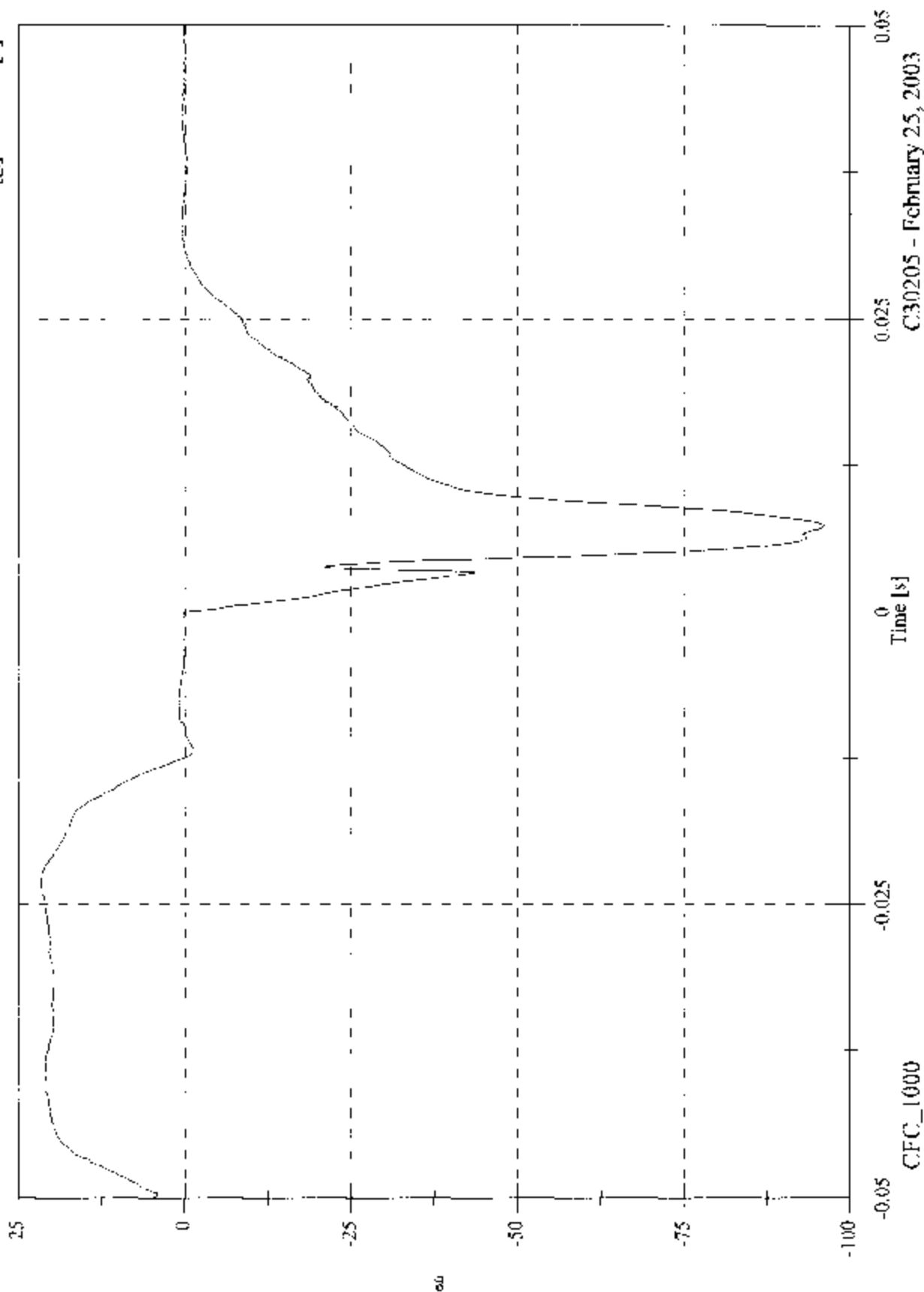
Max: 102.0 [g] at 0.007 [s]

Min: 0.0 [g] at -0.092 [s]



FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP
Headform X Acceleration

Max: 21.7 [g] at -0.023 [s]
Min: -96.2 [g] at 0.007 [s]

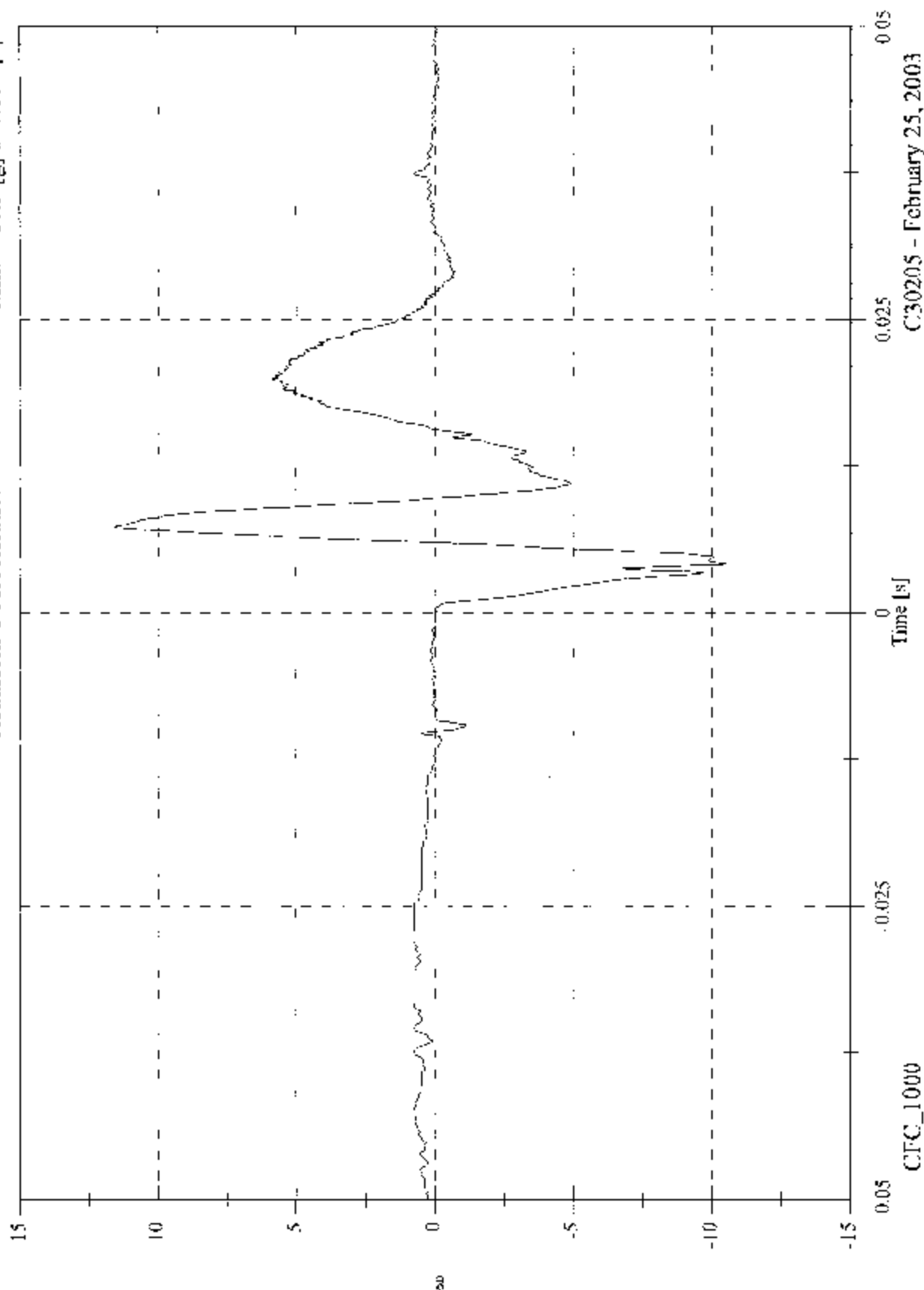


C30205 PASSENGER SIDE BP4 IMPACT PLOT #1

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Headform Y Acceleration

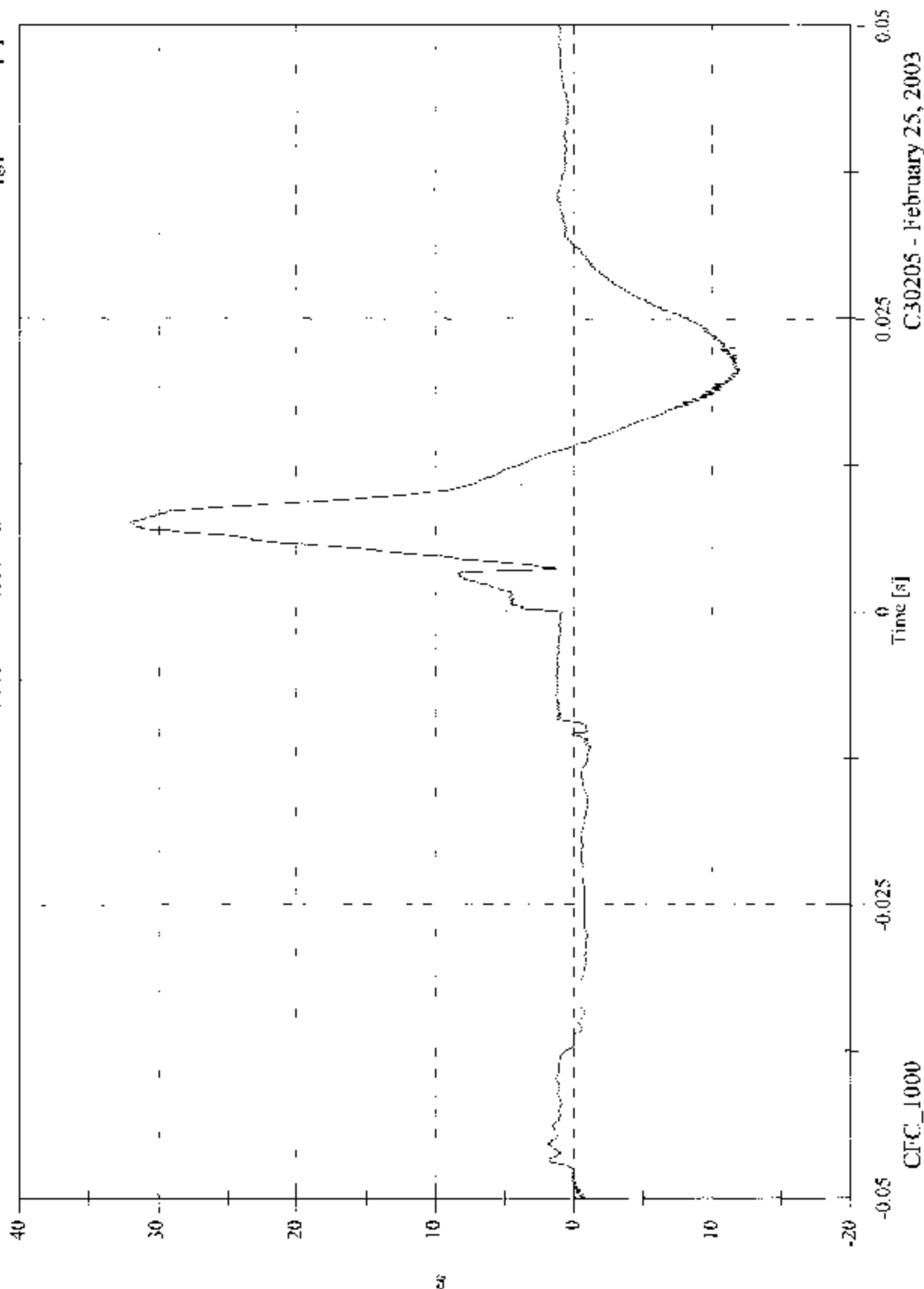
Max: 11.6 [g] at 0.007 [s]
Min: -10.5 [g] at 0.004 [s]



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FMVSS 2011U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP
Headform Z Acceleration

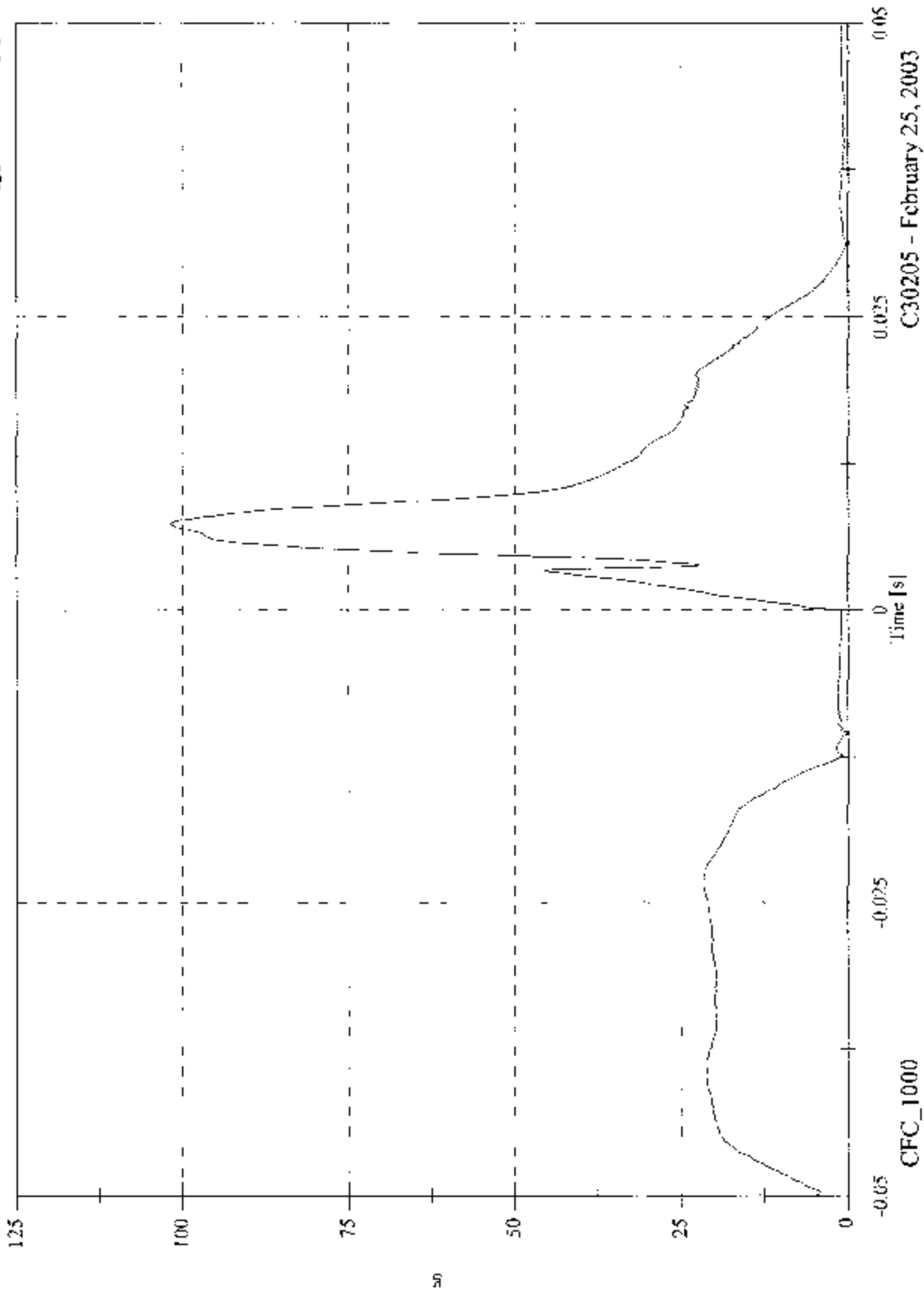
Max: 32.0 [g] at 0.008 [s]
Min: -12.0 [g] at 0.021 [s]



C30205 PASSENGER SIDE BP4 IMPACT PLOT #3

FMVSS 201C IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP
 Headform Resultant

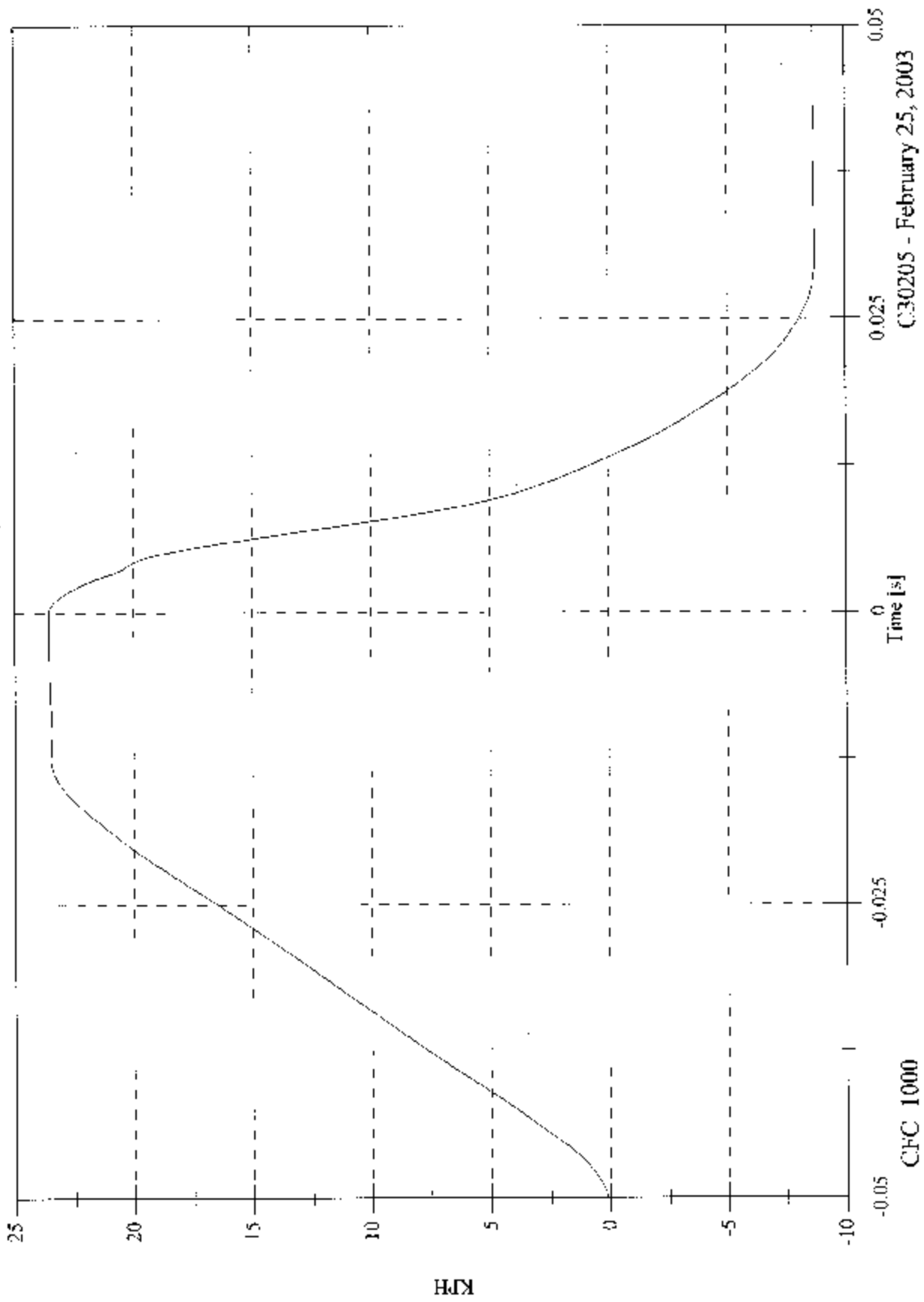
Max: 102.0 [g] at 0.007 [s]
 Min: 0.1 [g] at -0.010 [s]



C30205 PASSENGER SIDE BP4 IMPACT PLOT #4

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Headform Velocity

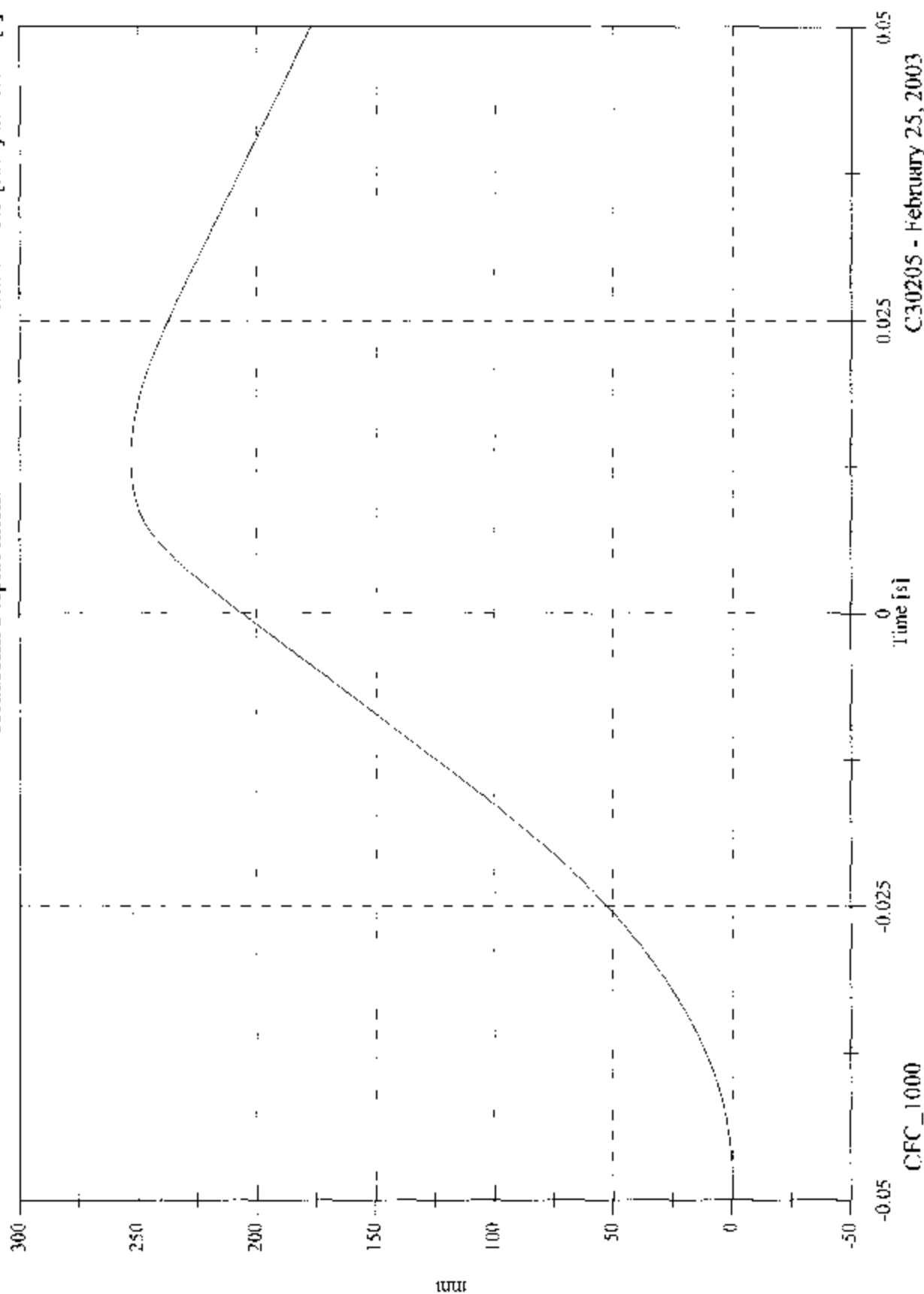


C30205 PASSENGER SIDE BP4 IMPACT PLOT #5

FMVSS 201C IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Headform Displacement

Max: 253.2 [mm] at 0.013 [s]
Min: -0.3 [mm] at -0.050 [s]



CFC_1000

Time [s]

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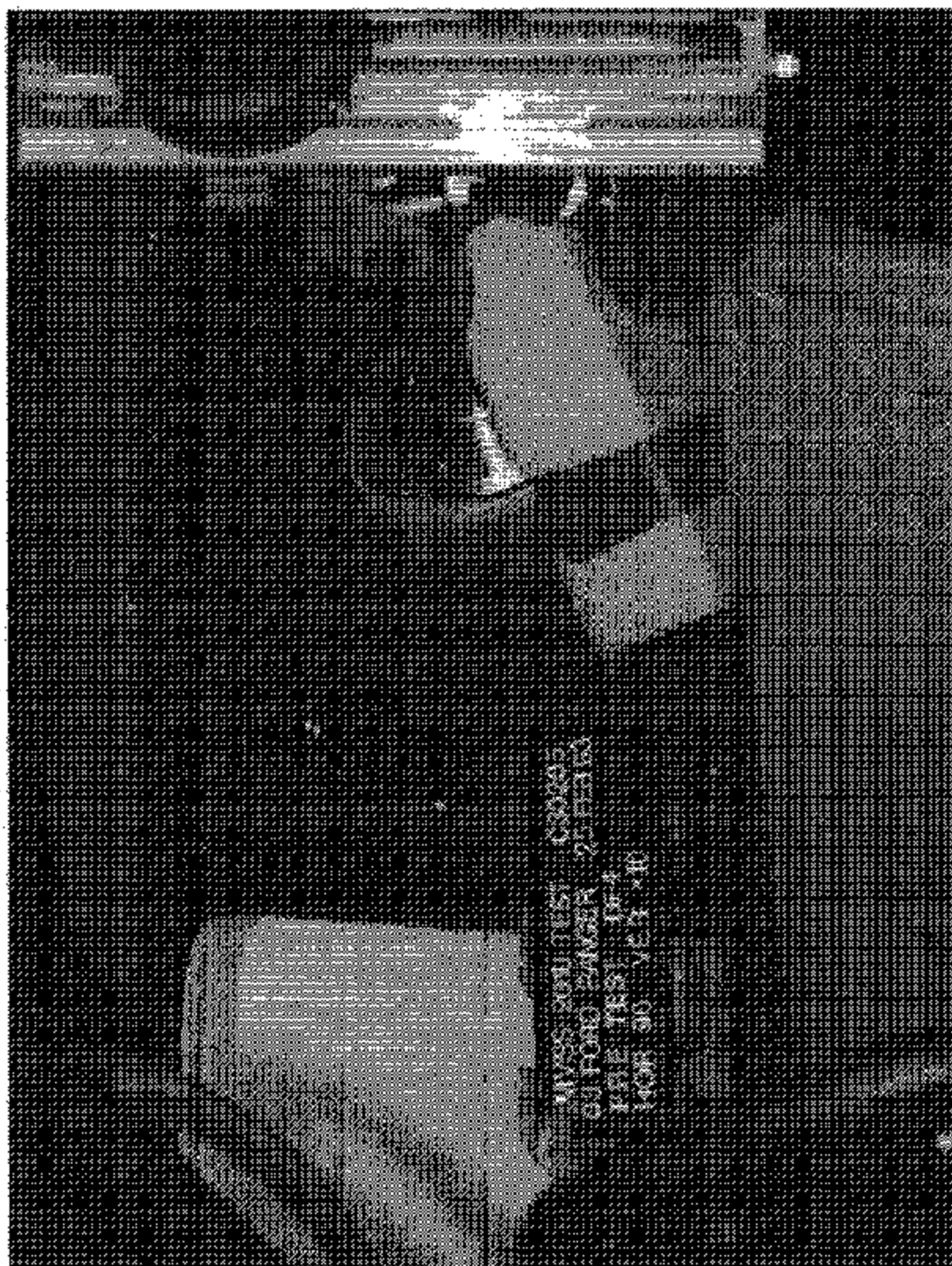


Figure : PRE-TEST DP4

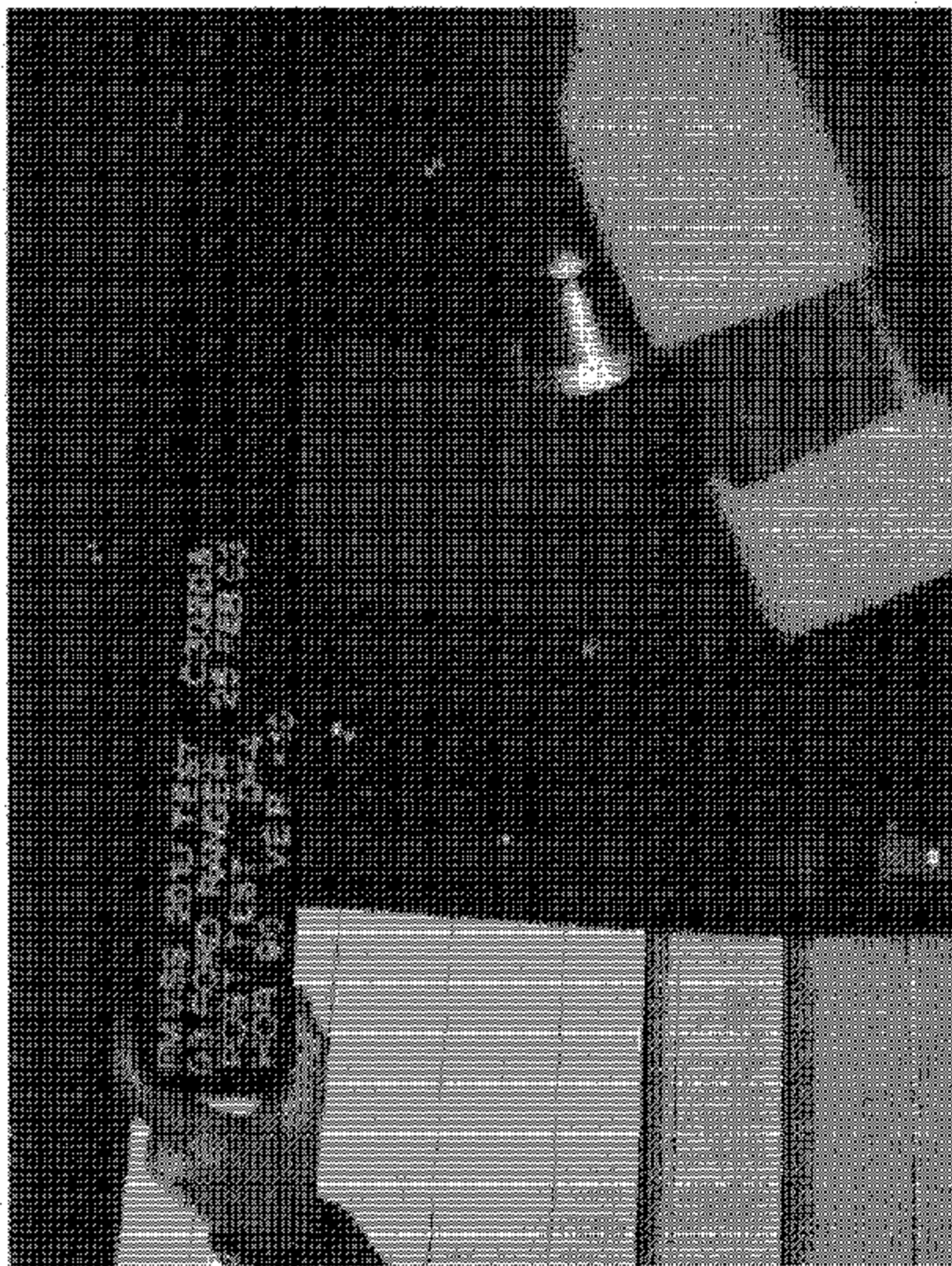


Figure : PKGT-TEST DE4

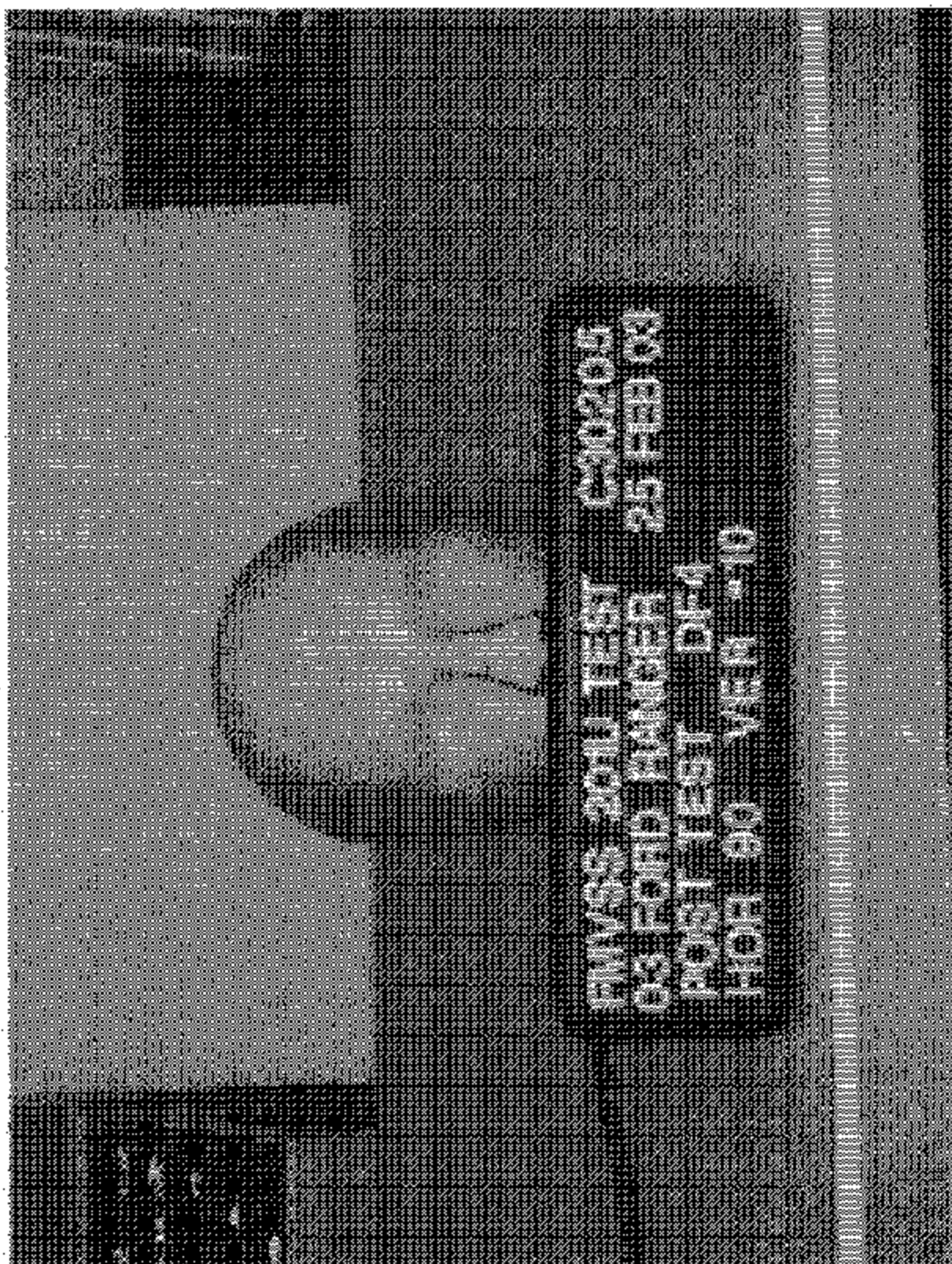


Figure : DF1 HEADFORM

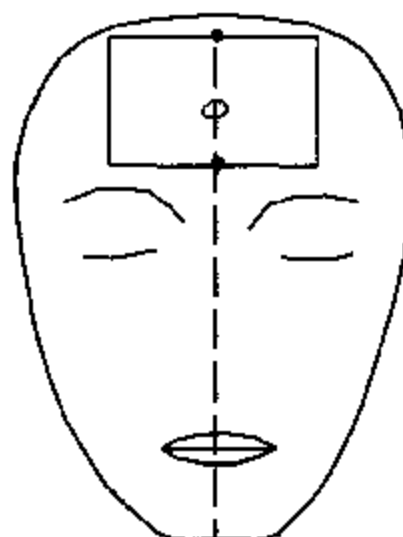
Year/Make/Model/Body Style: 2003 Ford Ranger XLT Supercab
 Vehicle Body Color: Blue VIN: 1FTYR44V43PA35111
 Vehicle NHTSA No.: C30205 Month & Year of Manufacture: 10/2002

Test Number: 5 Test Date: February 25, 2003
 Target Location: DOOR FRAME Target Code: DF1
 Horizontal Impact Angle: 90 ° Vertical Impact Angle: 14 °
 Ambient Temperature: 23 °C Time of Impact: 2:30
 Headform Number: 0062

Impact Point:

Description:

Description:	From lower midpoint			
On centerline	31	mm up		
On centerline	0	-	mm right	- mm left



Free Motion HIC: 398.8 HIC(d): 467.3
 Impact Velocity (kph): 23.68 HIC1: 4.0 msec HIC2: 13.3 msec

Post-Test Comments:

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

FMH Headform 0062

Location: DFI

Test Date: February 25, 2003

Work File: DFI

-----TEST RESULTS-----

Lab Temperature: 23 C

HICd: 467.3

Lab Humidity: 11 %

HIC (36ms): 398.8

Velocity at Impact: 23.68 KPH

t1: 4.0 msec

t2: 13.3 msec

Free Flight Distance: 211.80 mm

Duration: 9.3 msec

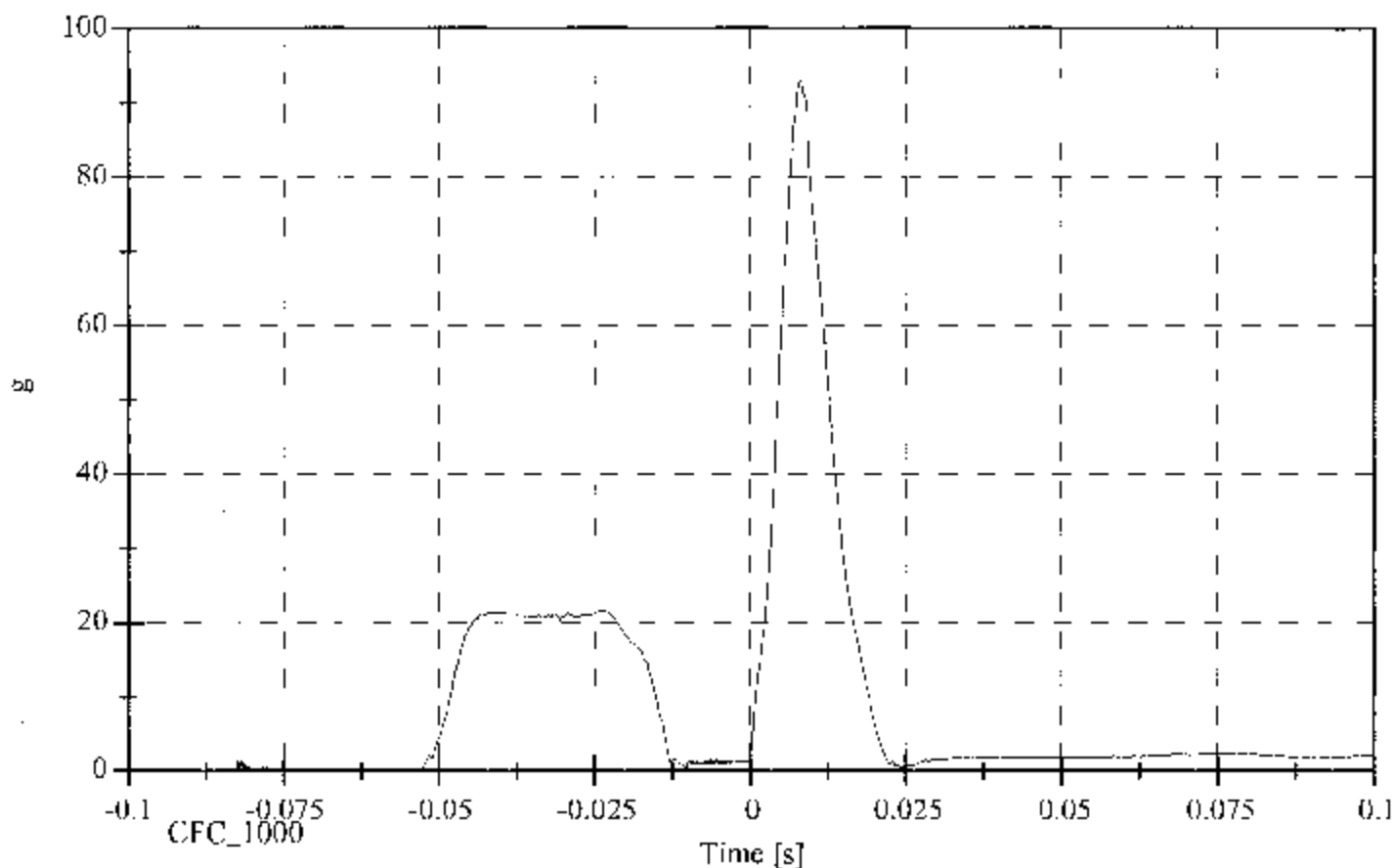
Average Acceleration: 8.7 g

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Max: 93.1 [g] at 0.008 [s]

Headform Resultant

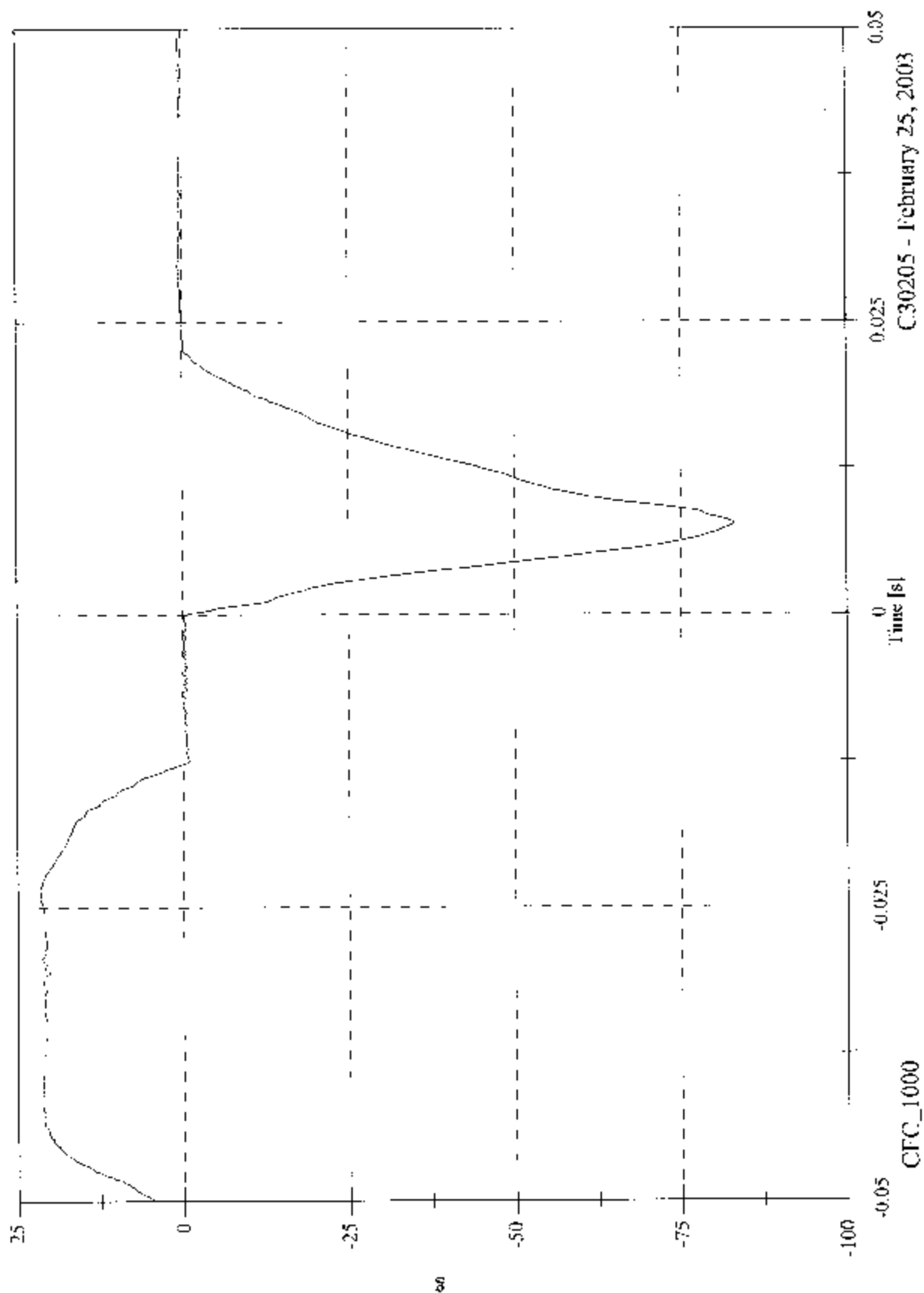
Min: 0.0 [g] at -0.098 [s]



FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP
Headform X Acceleration

Max: 21.7 [g] at -0.023 [s]

Min: -83.1 [g] at 0.008 [s]



CFC_1000

Time [s]

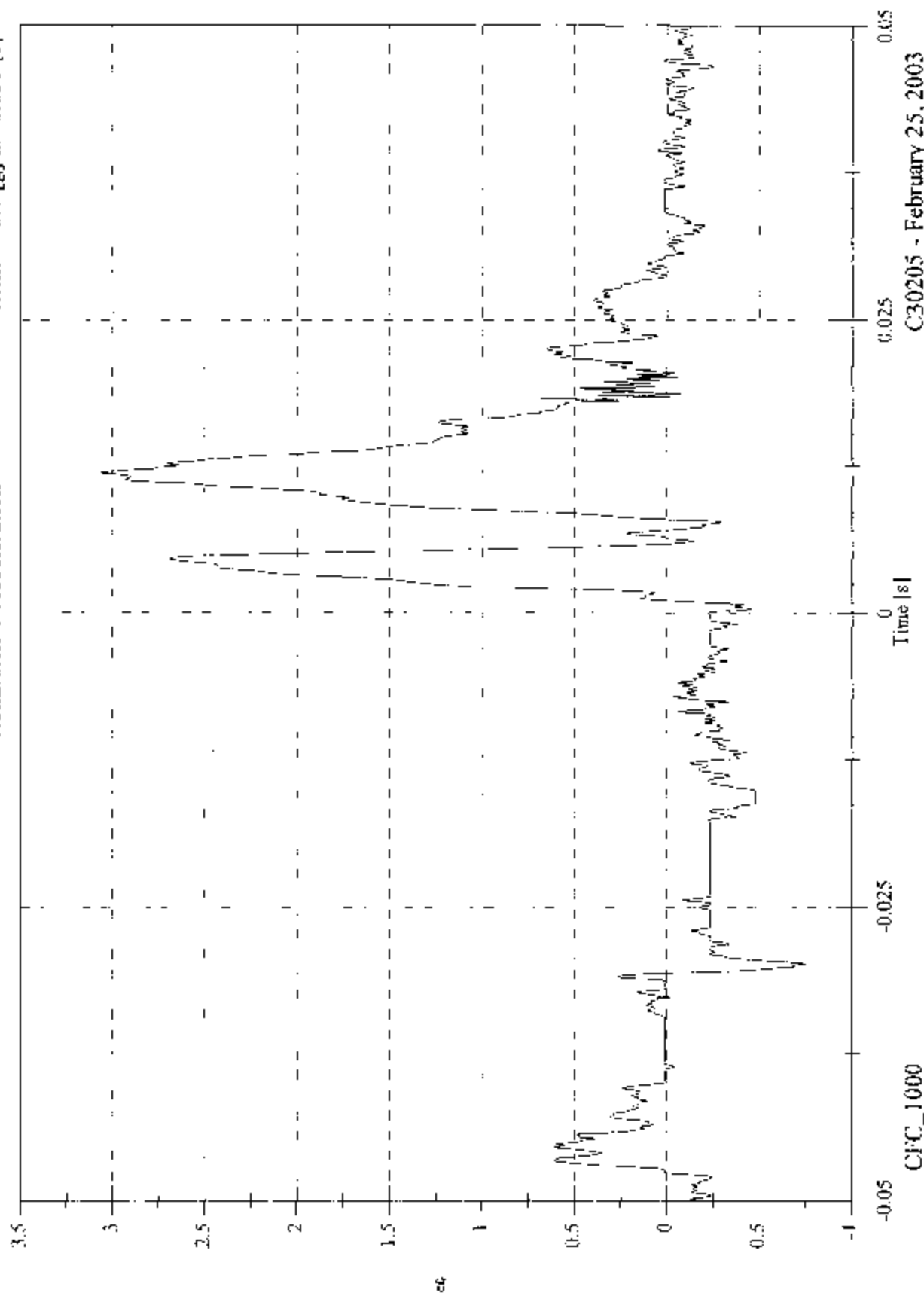
C30205 - February 25, 2003

FMVSS 201C IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Headform Y Acceleration

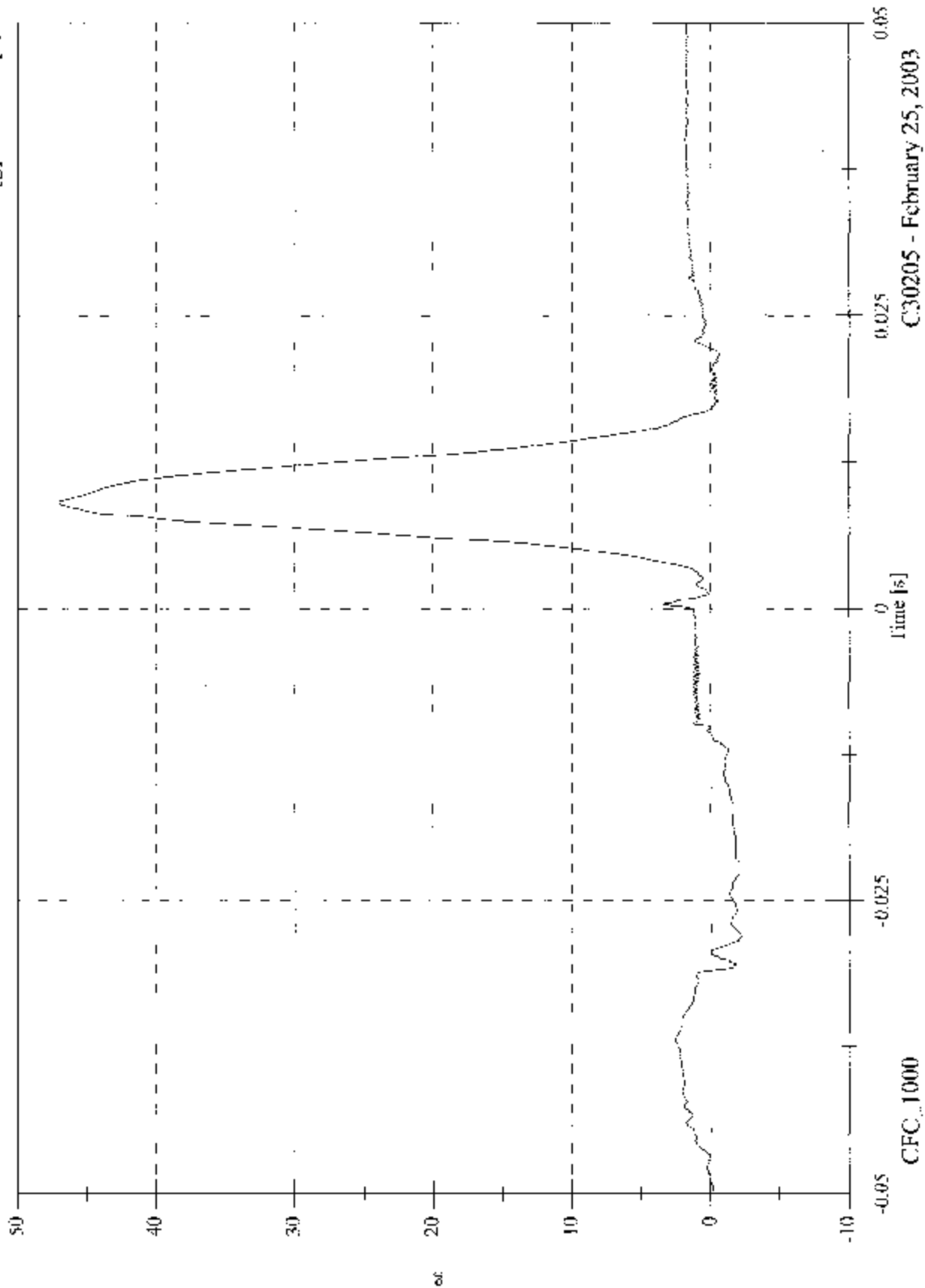
Max: 3.1 [g] at 0.012 [s]

Min: -0.7 [g] at -0.030 [s]



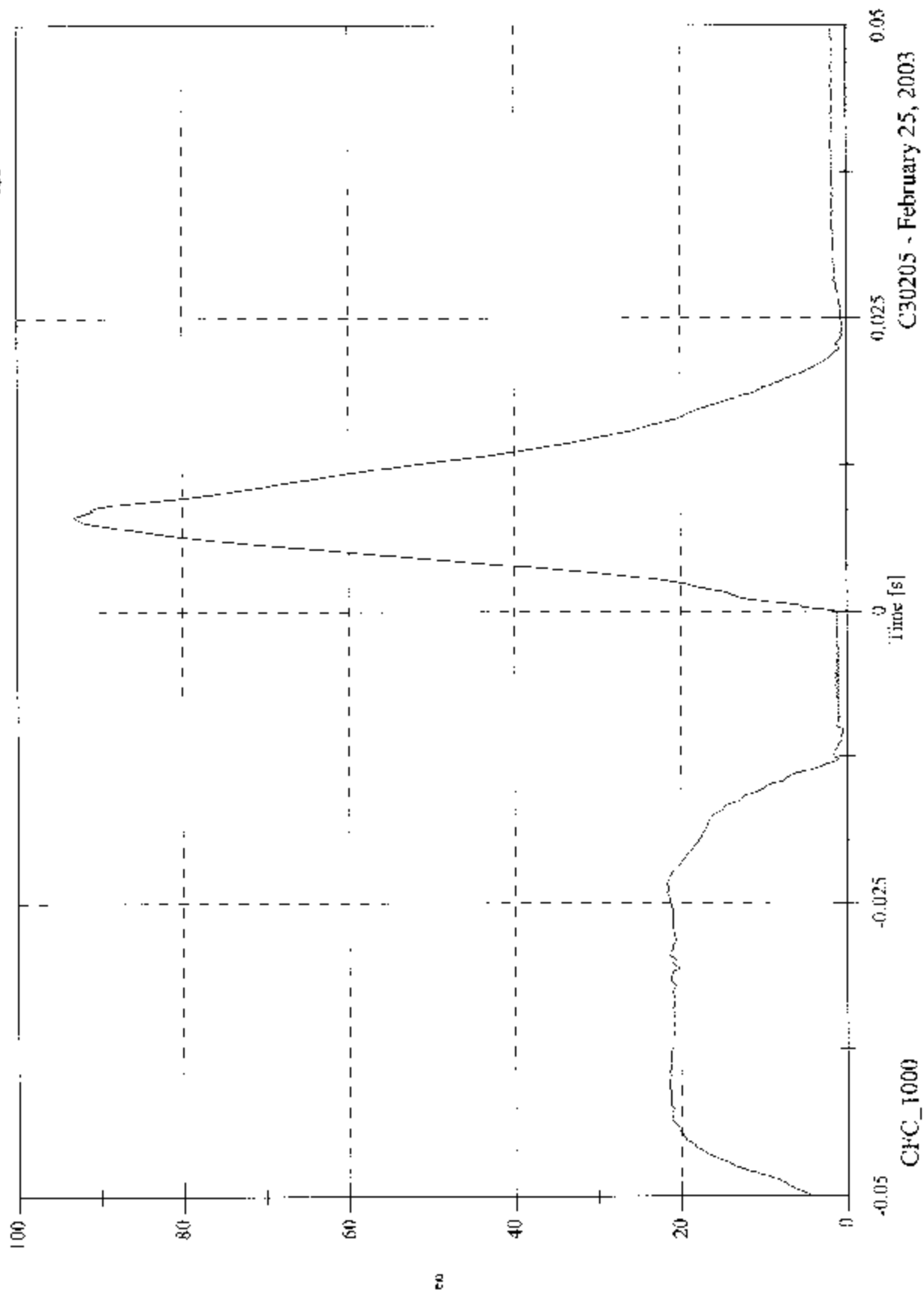
C30205 - February 25, 2003

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP
Headform Z Acceleration
Max: 47.0 [g] at 0.009 [s]
Min: -2.2 [g] at -0.028 [s]



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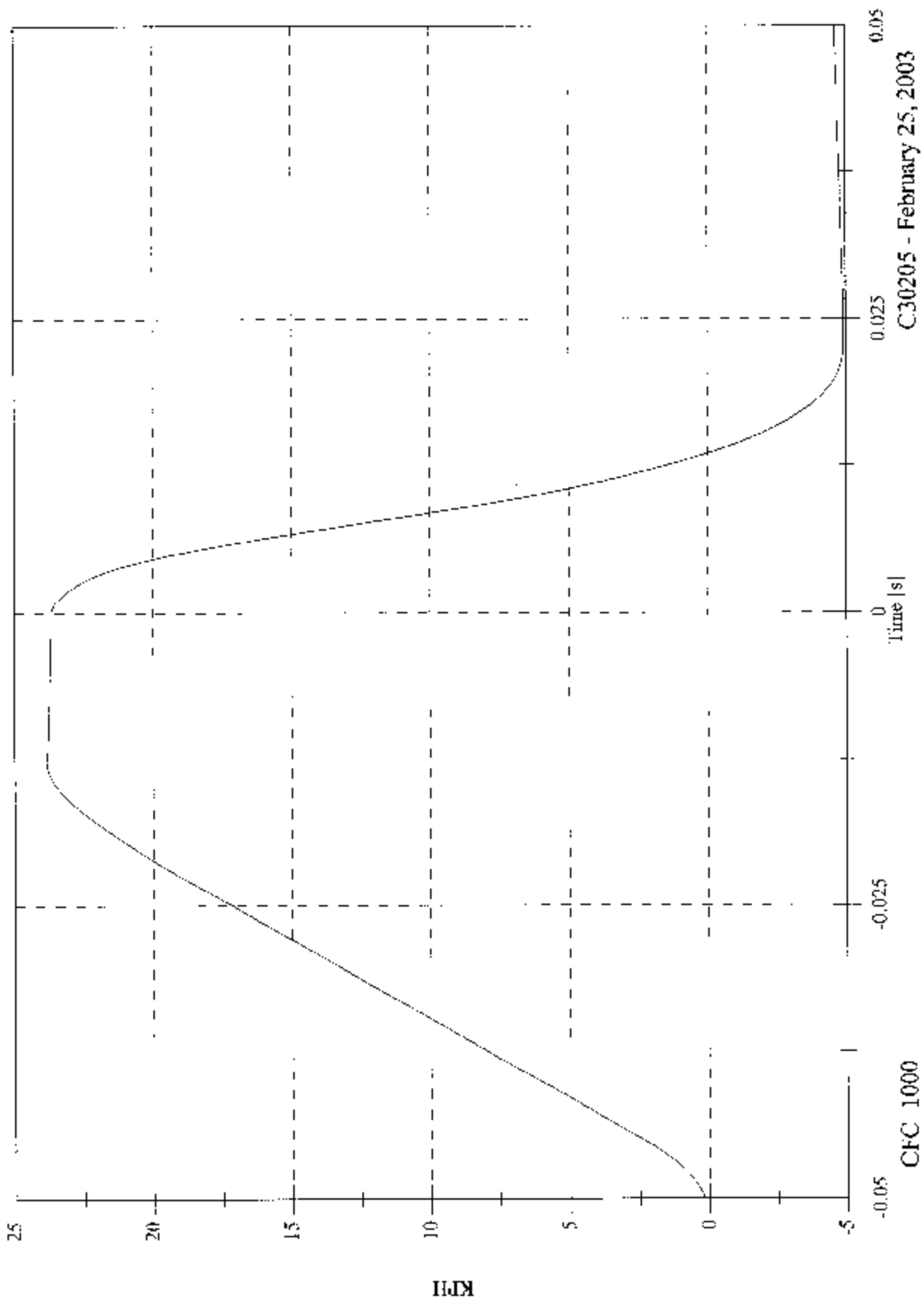
FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP
 Headform Resultant
 Max: 93.1 [g] at 0.008 [s]
 Min: 0.4 [g] at 0.024 [s]



FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Headform Velocity

Max: 23.8 [KPH] at -0.013 [s]
Min: -4.9 [KPH] at 0.024 [s]



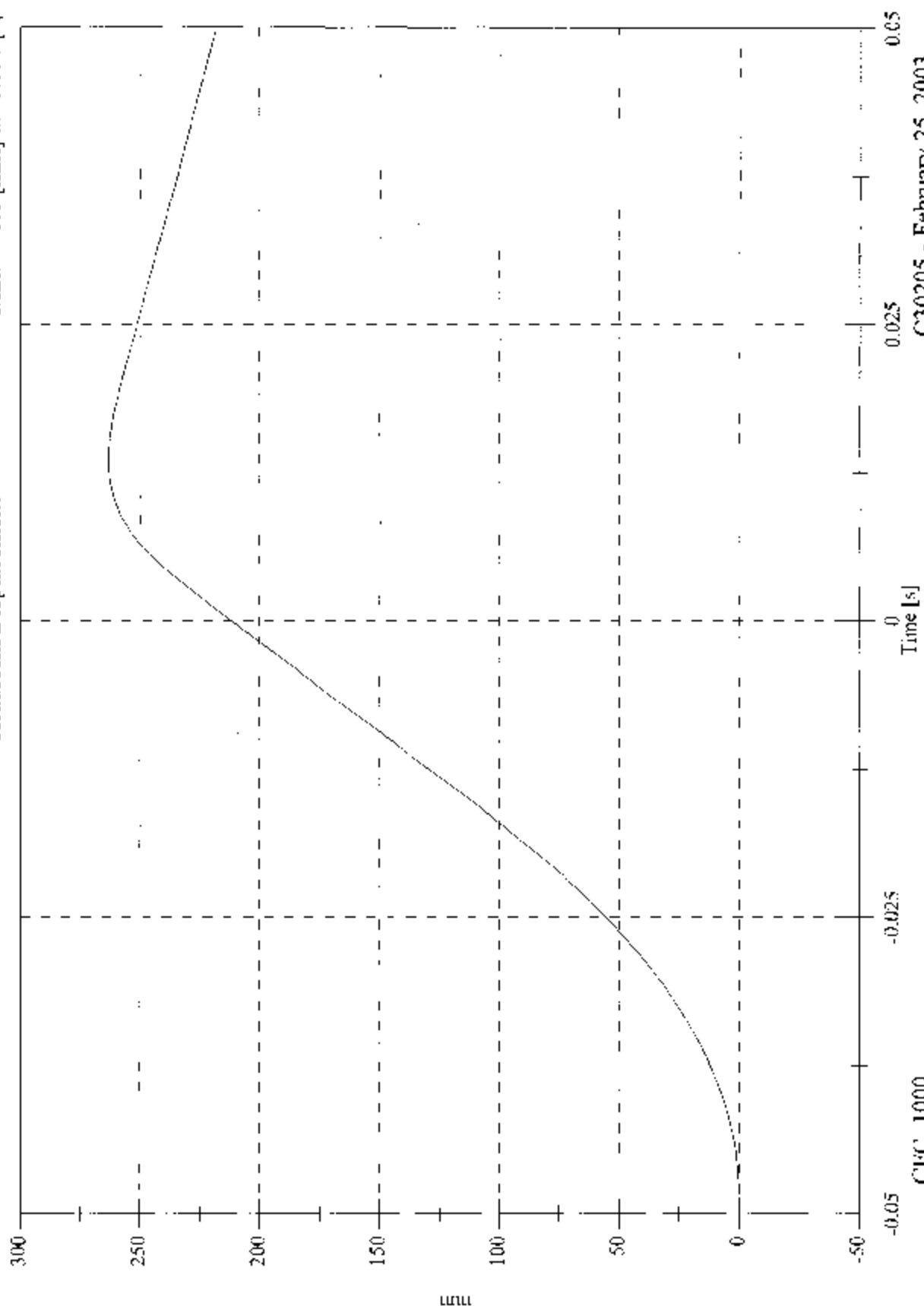
C30205 - February 25, 2003

C30205 PASSENGER SIDE DFI IMPACT PLOT #5

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Headform Displacement

Max: 263.1 [mm] at 0.013 [s]
Min: -0.0 [mm] at -0.050 [s]



C/C_1000

Time [s]

0.025

0.05

C30205 - February 25, 2003



Figure - PRE-TEST DF1

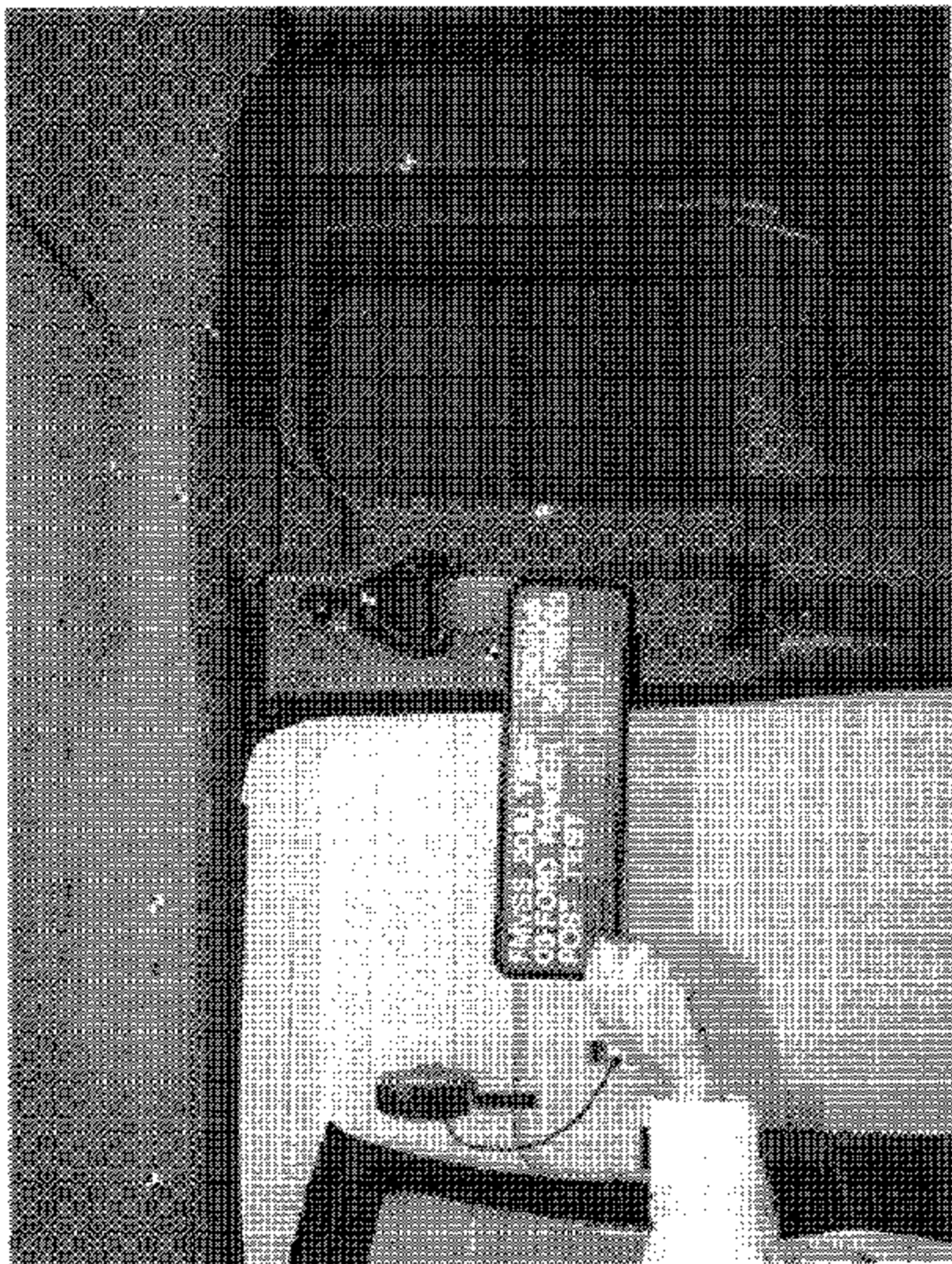


Figure 1: POST-TEST DFI

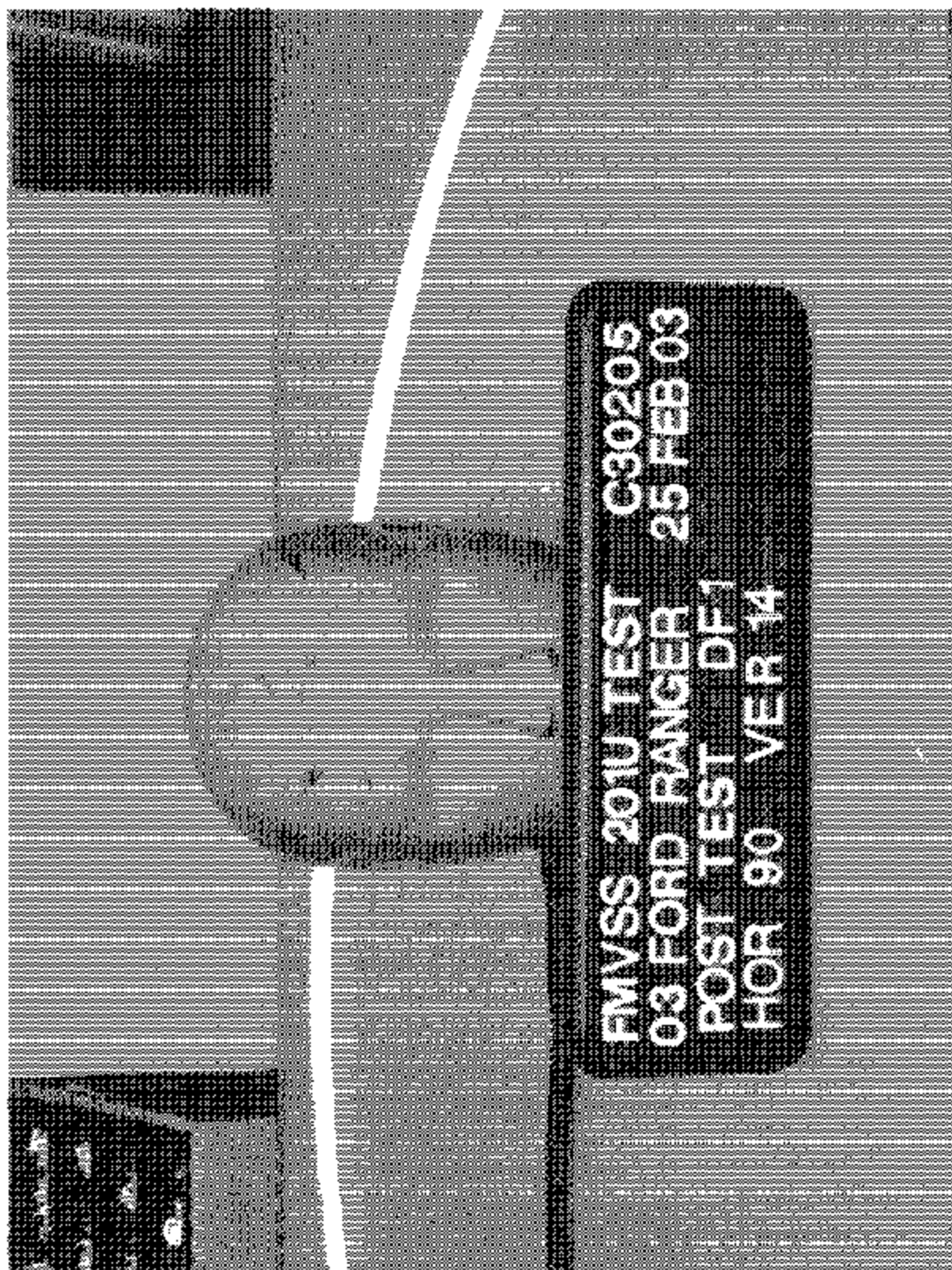


Figure 1. DF1 HEADFORM

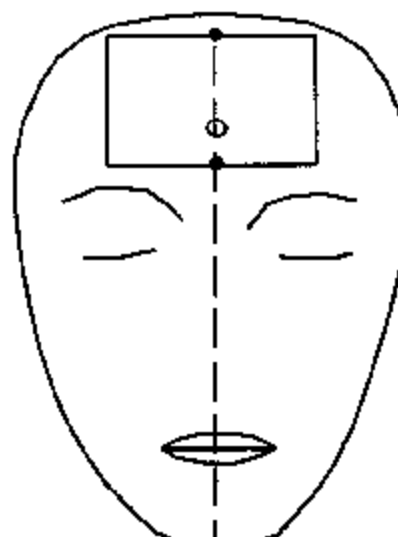
Year/Make/Model/Body Style: 2003 Ford Ranger XLT Supercab
 Vehicle Body Color: Blue VIN: 1FTYR44V43PA35111
 Vehicle NHTSA No.: C30205 Month & Year of Manufacture: 10/2002

Test Number: 6 Test Date: February 25, 2003
 Target Location: REAR PILLAR Target Code: RP2
 Horizontal Impact Angle: 52 ° Vertical Impact Angle: -4 °
 Ambient Temperature: 23 °C Time of Impact: 3:40
 Headform Number: 0642

Impact Point:

Description:

Description: From lower midpoint				
On centerline	10	mm up		
On centerline	0	-	mm right	- mm left



Free Motion HIC: 586.3 HIC(d): 608.7
 Impact Velocity (kph): 23.80 HIC1: 1.8 msec HIC12: 10.1 msec

Post-Test Comments:

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

FMH Headform 0642

Location: RP2

Test Date: February 25, 2003

Work File: RP2

-----TEST RESULTS-----

Lab Temperature: 23 C

HICd: 608.7

Lab Humidity: 11 %

HIC (36ms): 586.3

Velocity at Impact: 23.80 KPH

t1: 1.8 msec

t2: 10.1 msec

Duration: 8.3 msec

Free Flight Distance: 208.79 mm

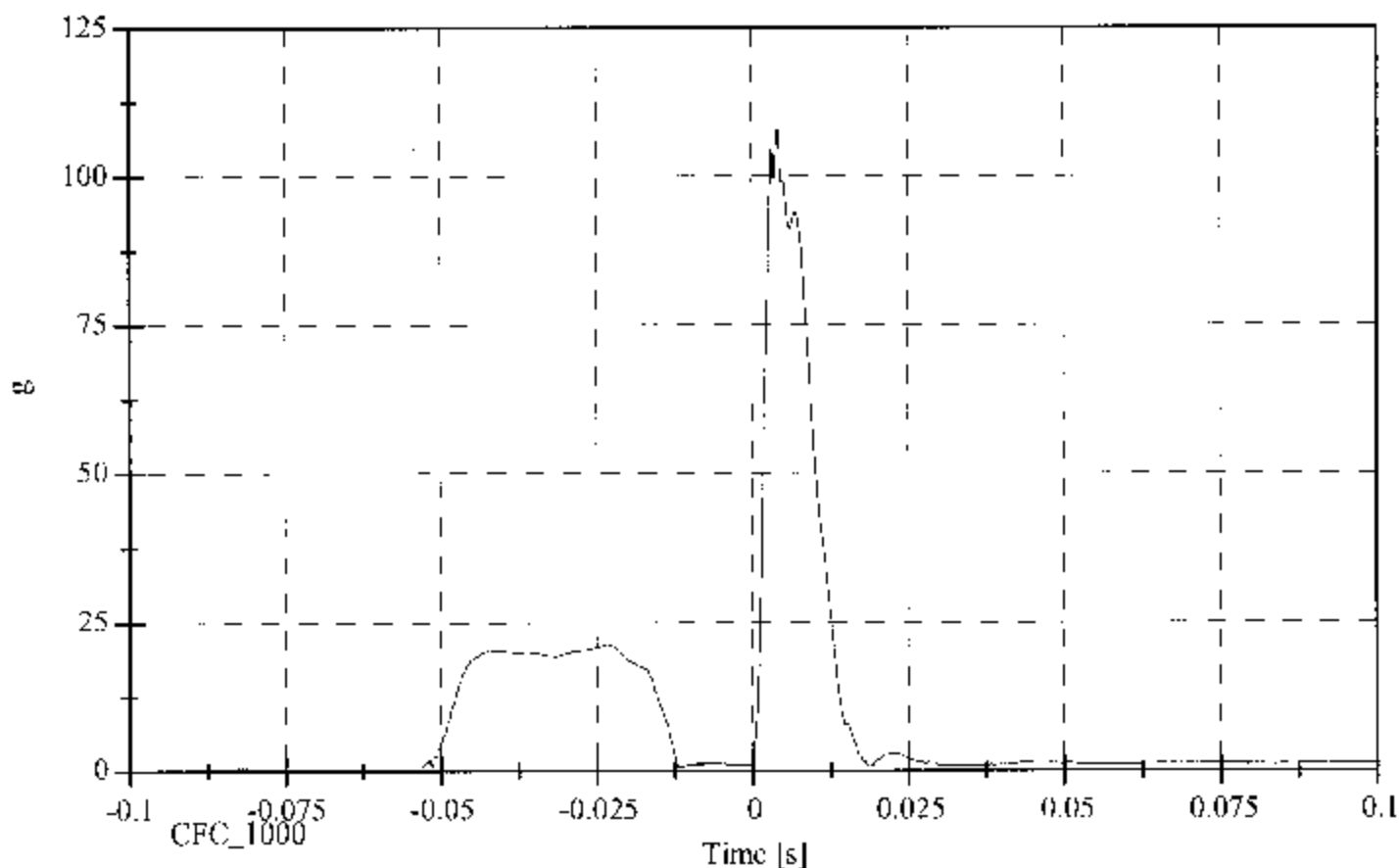
Average Acceleration: 8.5 g

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Max: 108.0 [g] at 0.004 [s]

Min: 0.0 [g] at -0.072 [s]

Headform Resultant

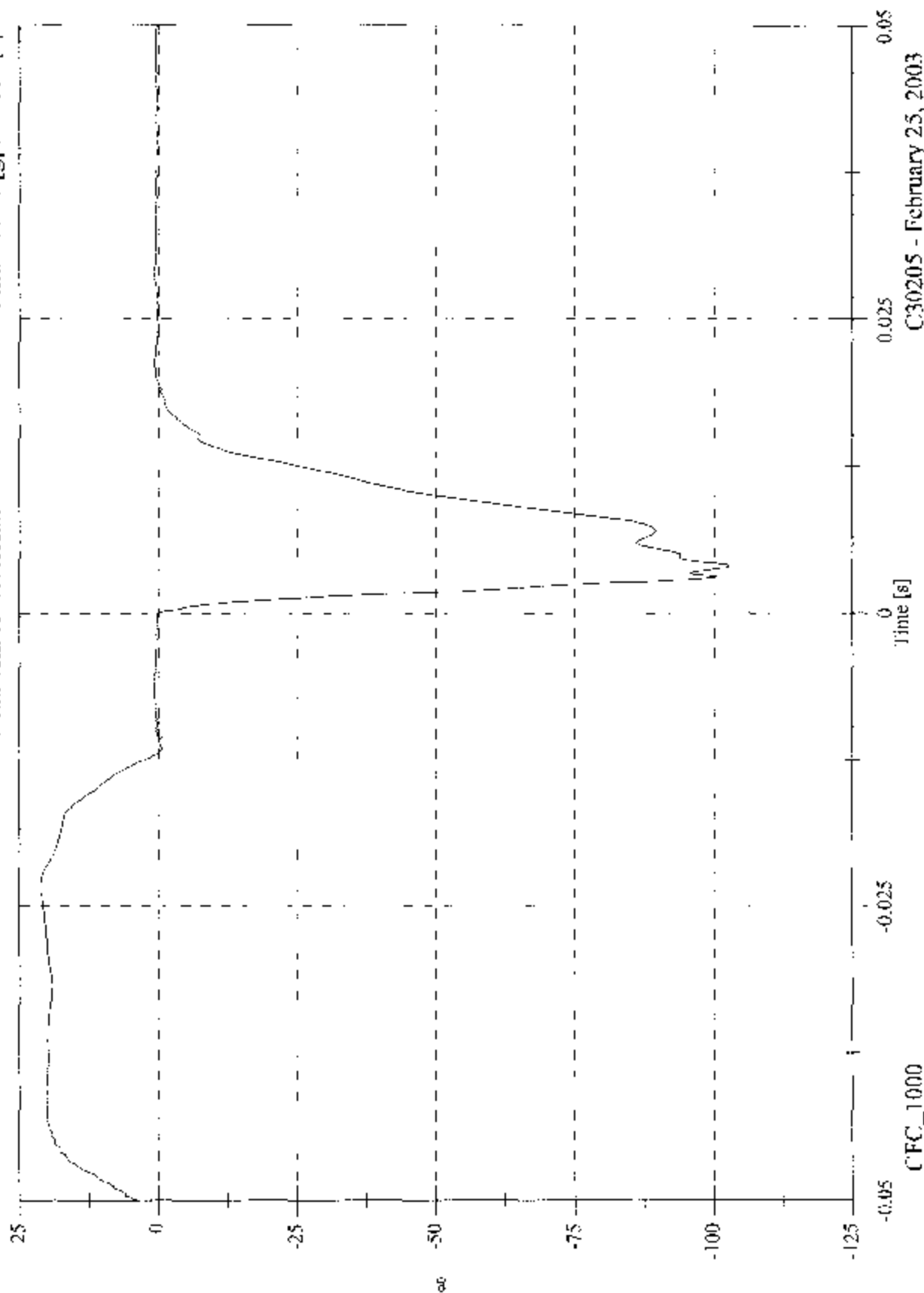


FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Headform X Acceleration

Max: 21.3 [g] at -0.023 [s]

Min: -102.8 [g] at 0.004 [s]



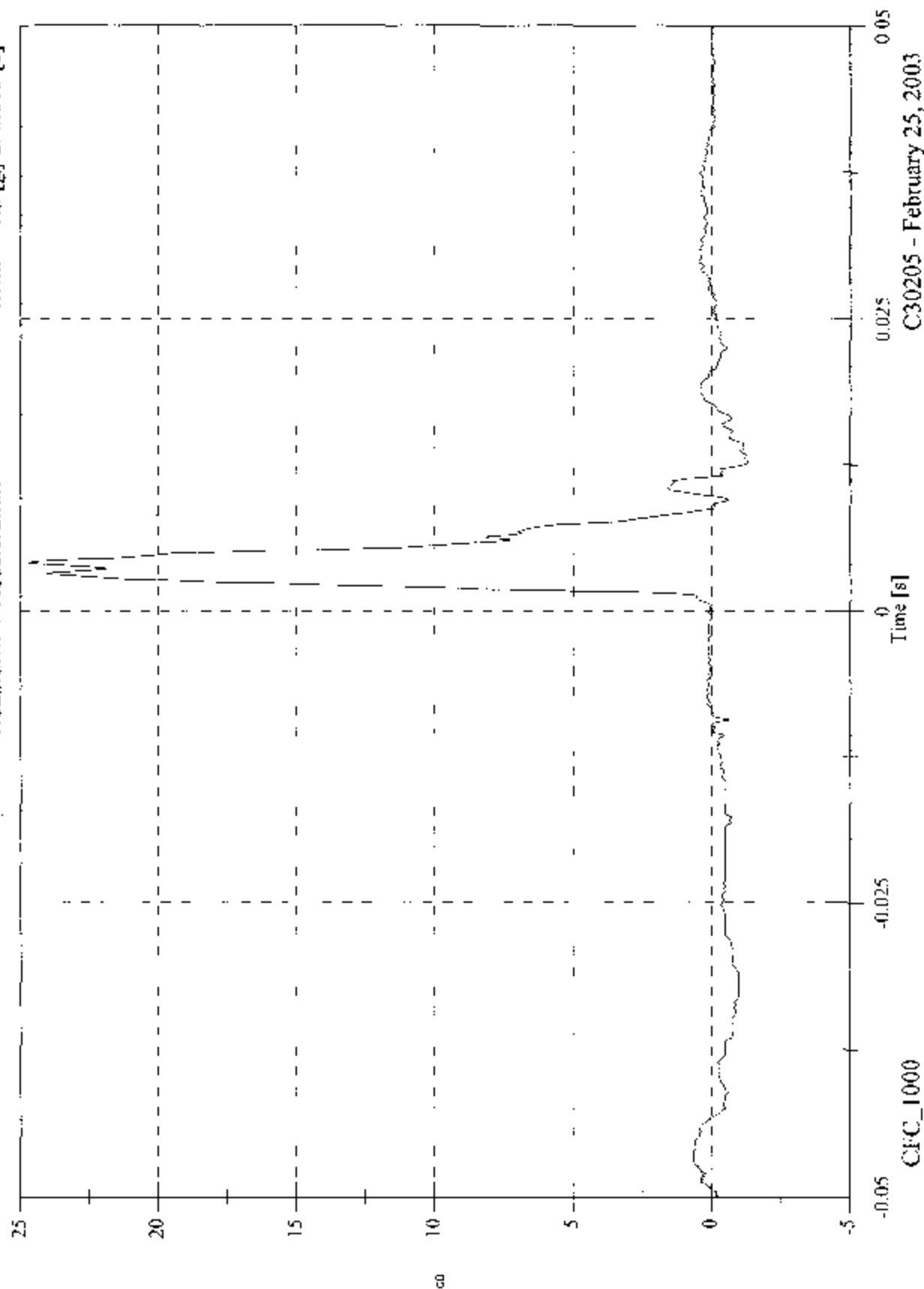
C30205 - February 25, 2003

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Headform Y Acceleration

Max: 24.7 [g] at 0.004 [s]

Min: -1.3 [g] at 0.013 [s]



CFC_1000

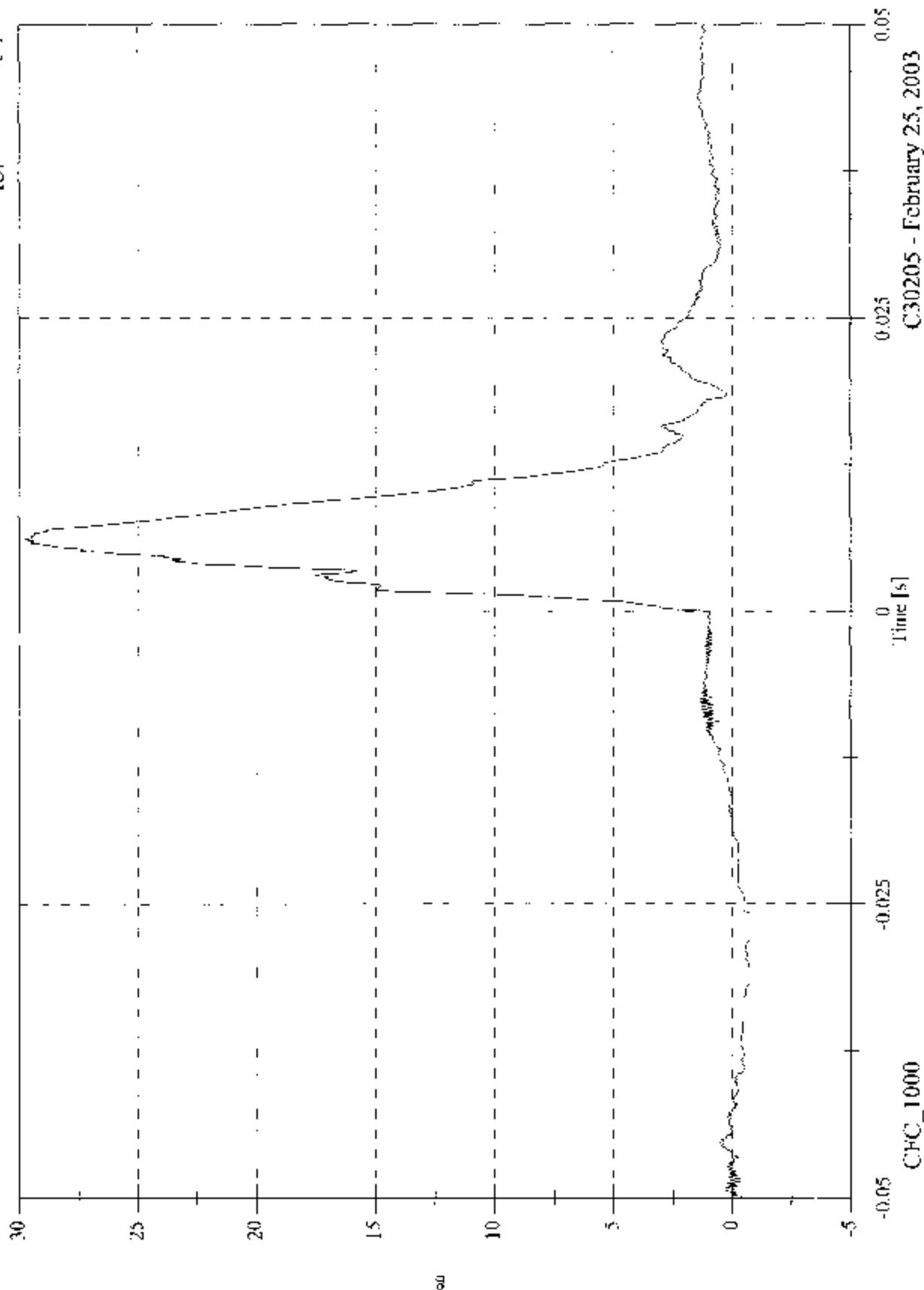
Time [s]

C30205 - February 25, 2003

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Headform Z Acceleration

Max: 29.8 [g] at 0.006 [s]
Min: -0.7 [g] at -0.026 [s]

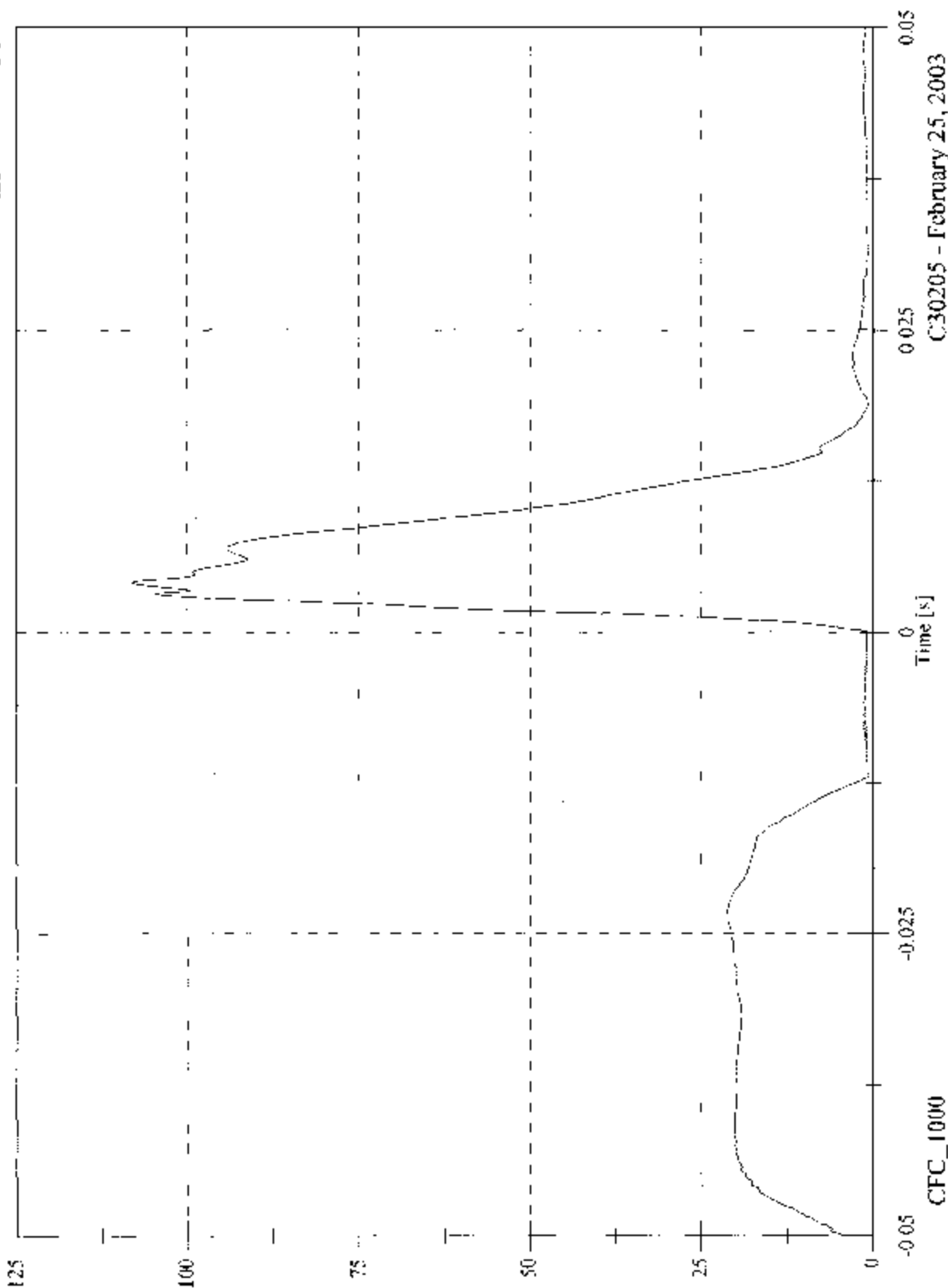


C30205 - February 25, 2003

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Headform Resultant

Max: 108.0 [g] at 0.004 [s]
Min: 0.6 [g] at -0.012 [s]

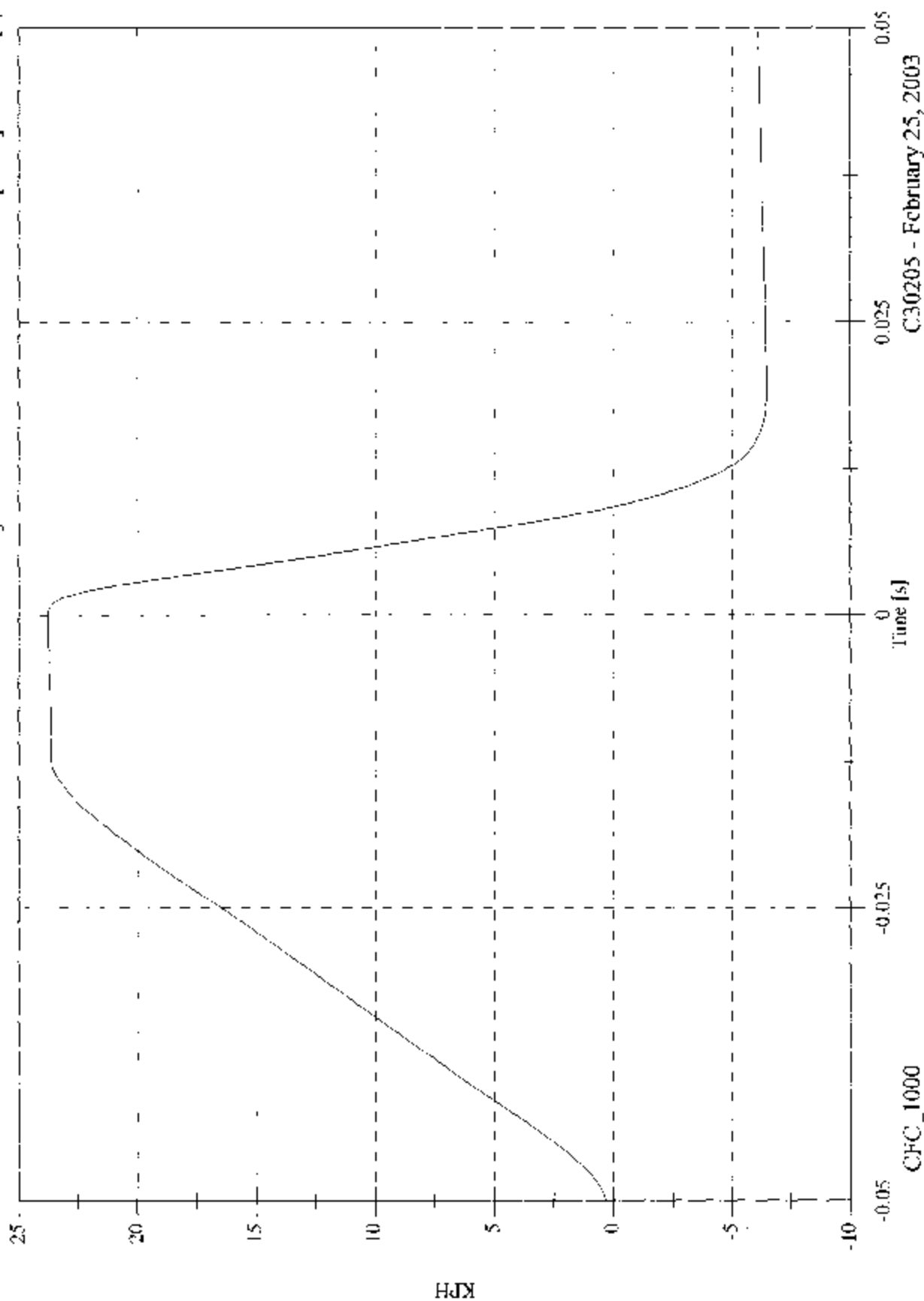


C30205 - February 25, 2003

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Max: 23.8 [KPH] at 0.000 [s]
 Min: -6.5 [KPH] at 0.020 [s]

Headform Velocity



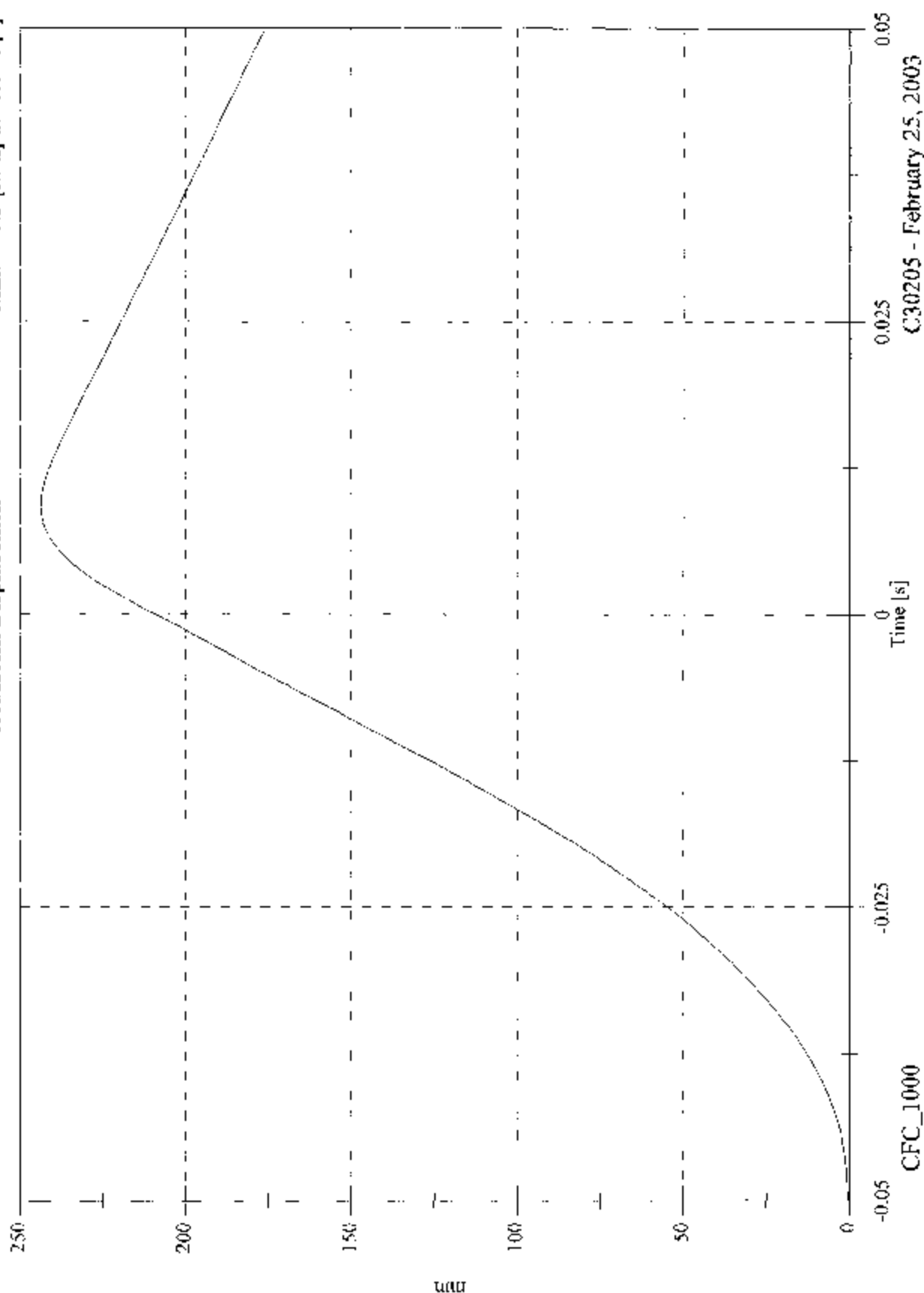
C30205 - February 25, 2003

FMVSS 2010 IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Headform Displacement

Max: 243.6 [mm] at 0.009 [s]

Min: 0.5 [mm] at -0.050 [s]



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Figure : PRE-TEST R12

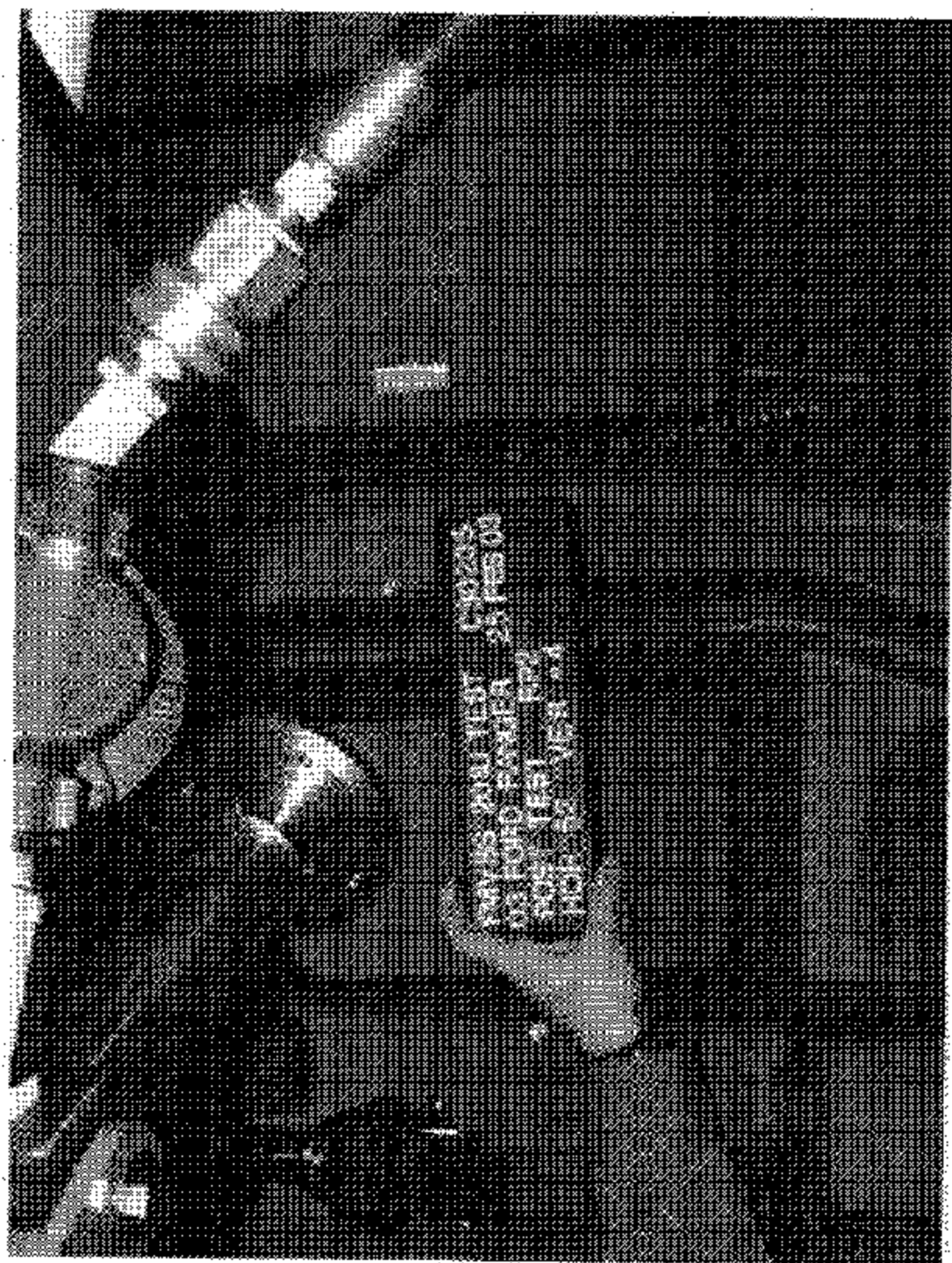


Figure : POST-TEST RP2

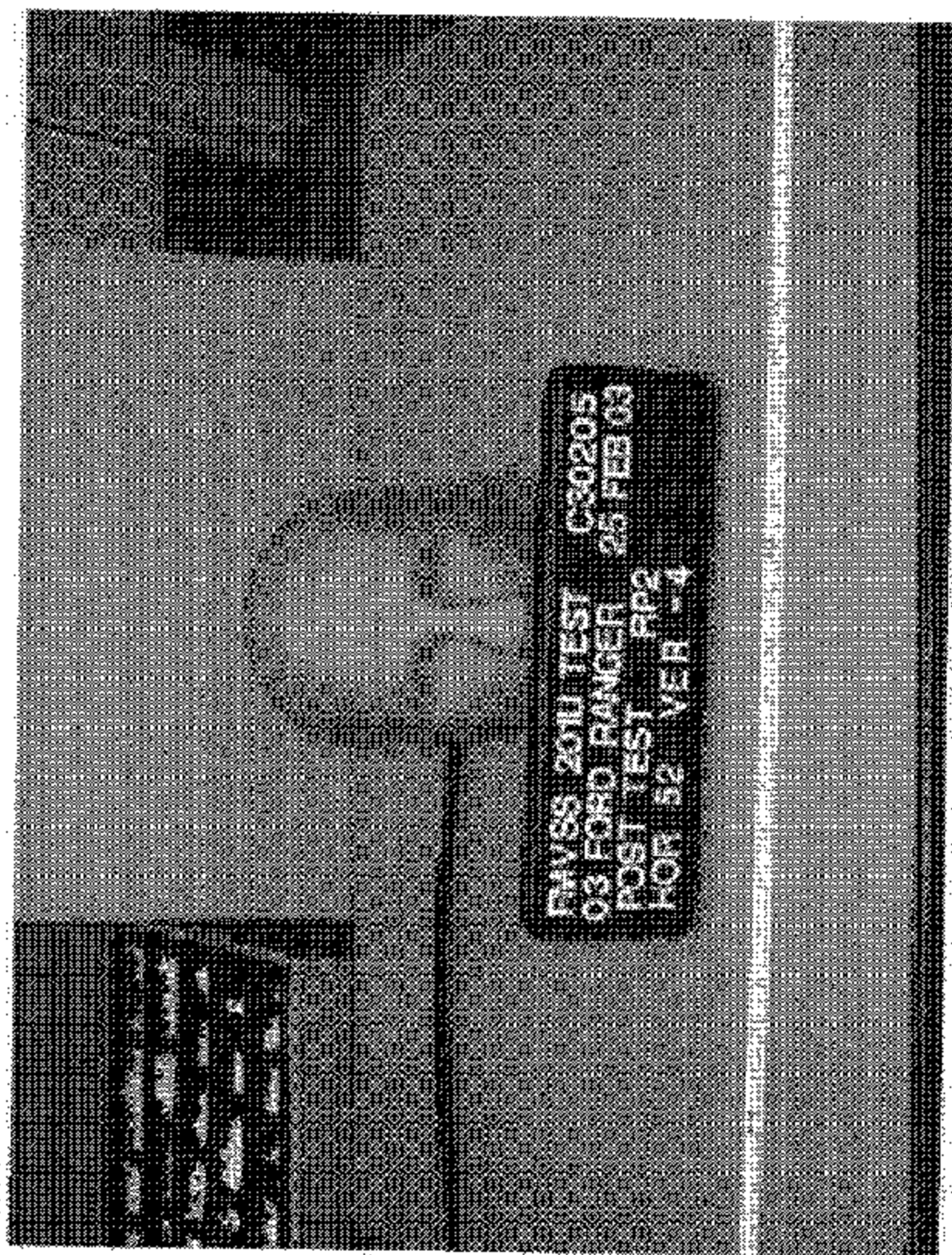


Figure : RP2 HEADFORM

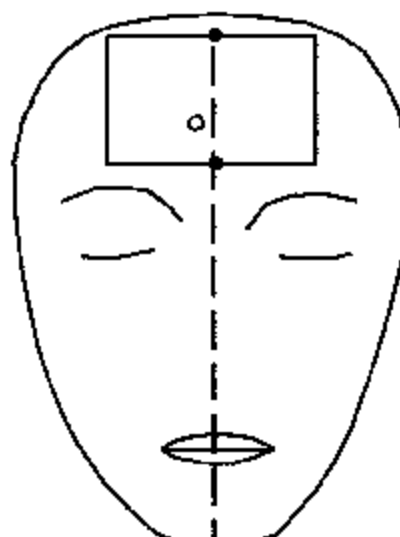
Year/Make/Model/Body Style: 2003 Ford Ranger XLT Supercab
Vehicle Body Color: Blue VTN: 1FTYR44V43PA35111
Vehicle NHTSA No.: C30205 Month & Year of Manufacture: 10/2002

Test Number: 7 Test Date: February 26, 2003
Target Location: REAR HEADER Target Code: RH
Horizontal Impact Angle: 360 ° Vertical Impact Angle: 25 °
Ambient Temperature: 22 °C Time of Impact: 10:00
Headform Number: 0642

Impact Point:

Description:

Description:	From lower midpoint				
On centerline	18	mm up			
On centerline	8	x	mm right	-	mm left



Free Motion HIC: 687.9 HIC(d): 685.4
Impact Velocity (kph): 23.67 HIC1: 6.2 msec HIC2: 13.4 msec

Post-Test Comments:

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP C30205

FMII Headform 0642

Location: RH

Test Date: February 26, 2003

Work File: RH

-----TEST RESULTS-----

Lab Temperature: 22 C

HICd: 685.4

Lab Humidity: 15 %

HIC (36ms): 687.9

Velocity at Impact: 23.67 KPH

t1: 6.2 msec

t2: 13.4 msec

Free Flight Distance: 214.06 mm

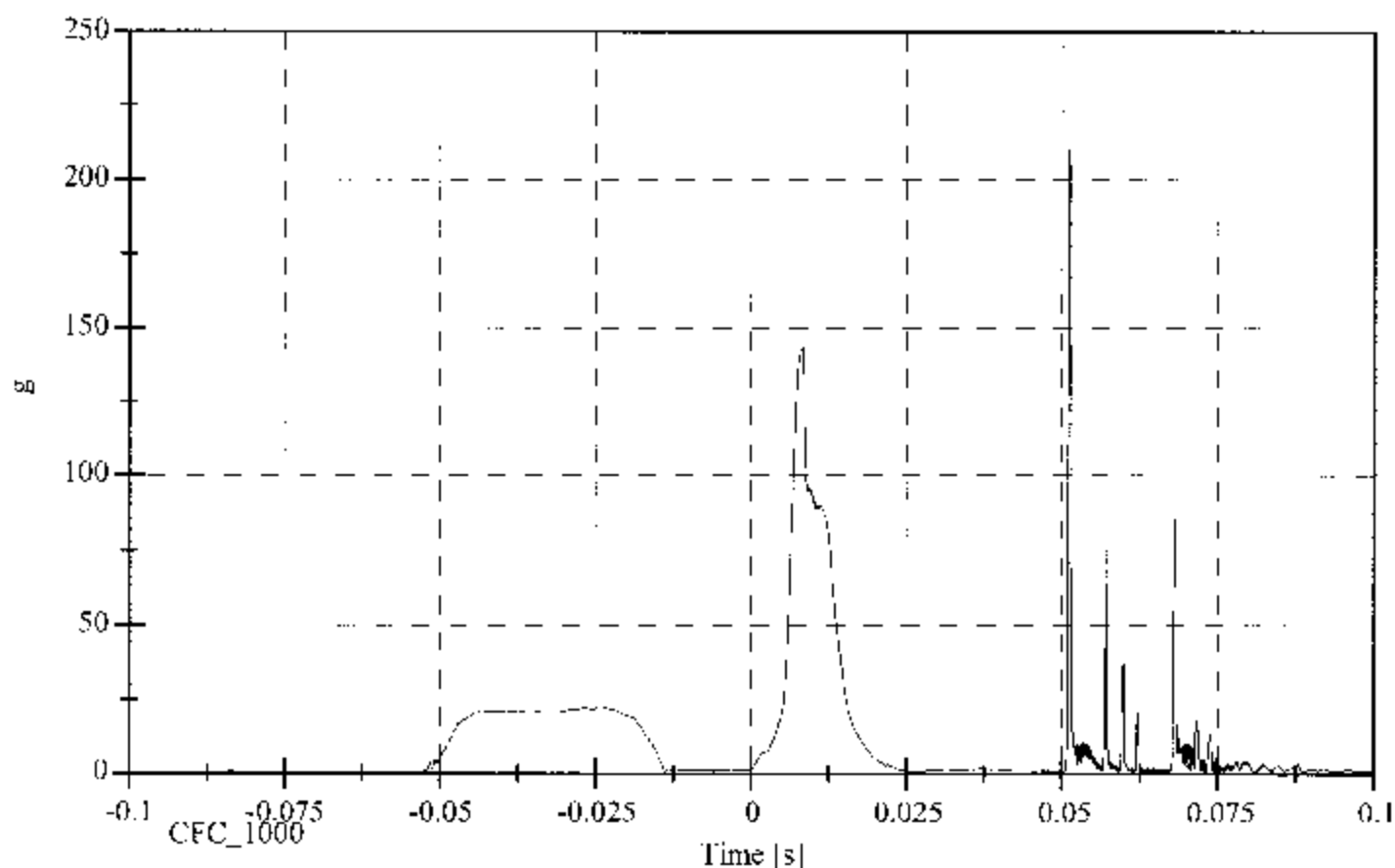
Duration: 7.2 msec

Average Acceleration: 9.9 g

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP
Headform Resultant

Max: 216.7 [g] at 0.051 [s]

Min: 0.0 [g] at -0.061 [s]

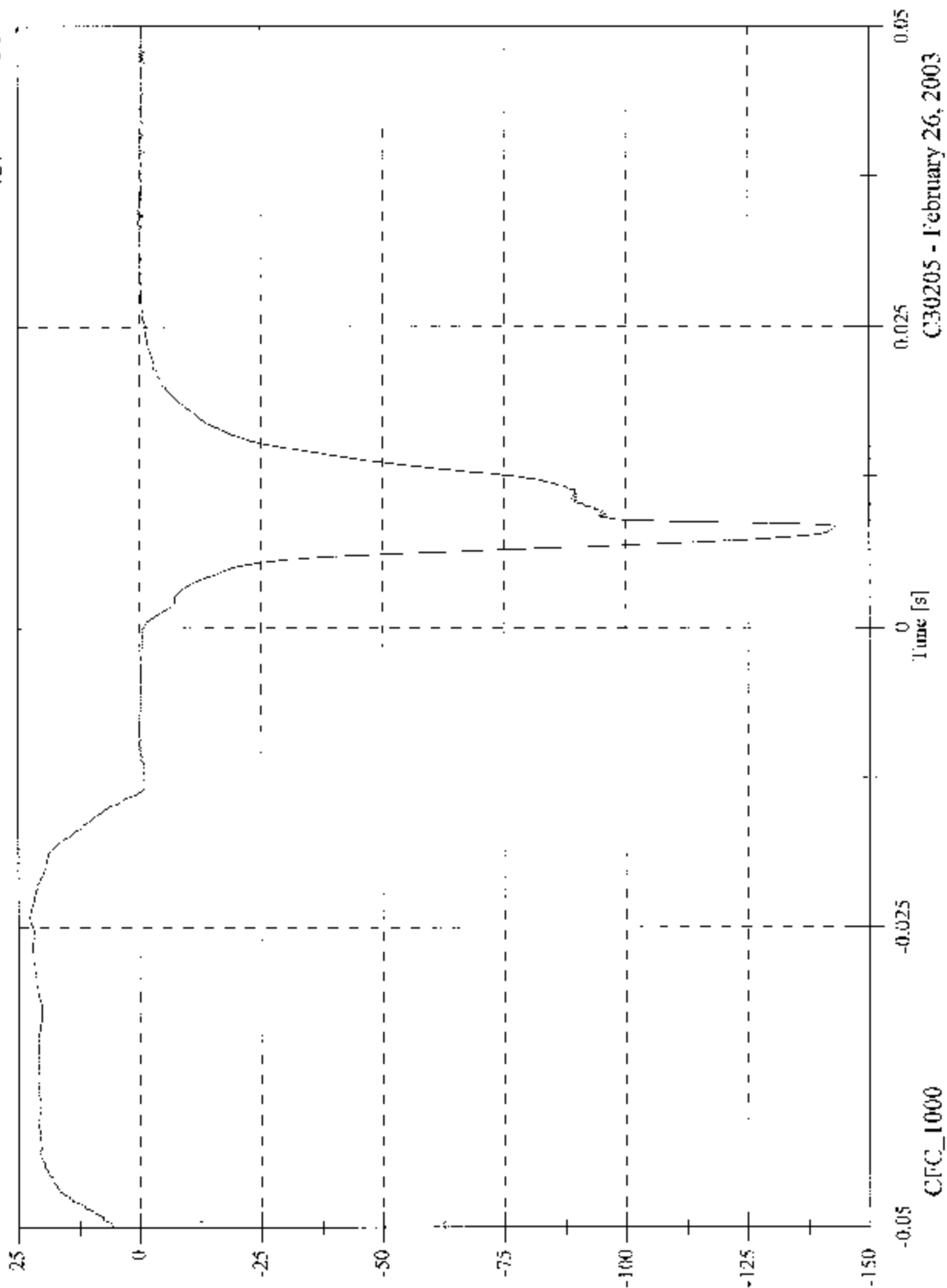


FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Headform X Acceleration

Max: 22.6 [g] at -0.024 [s]

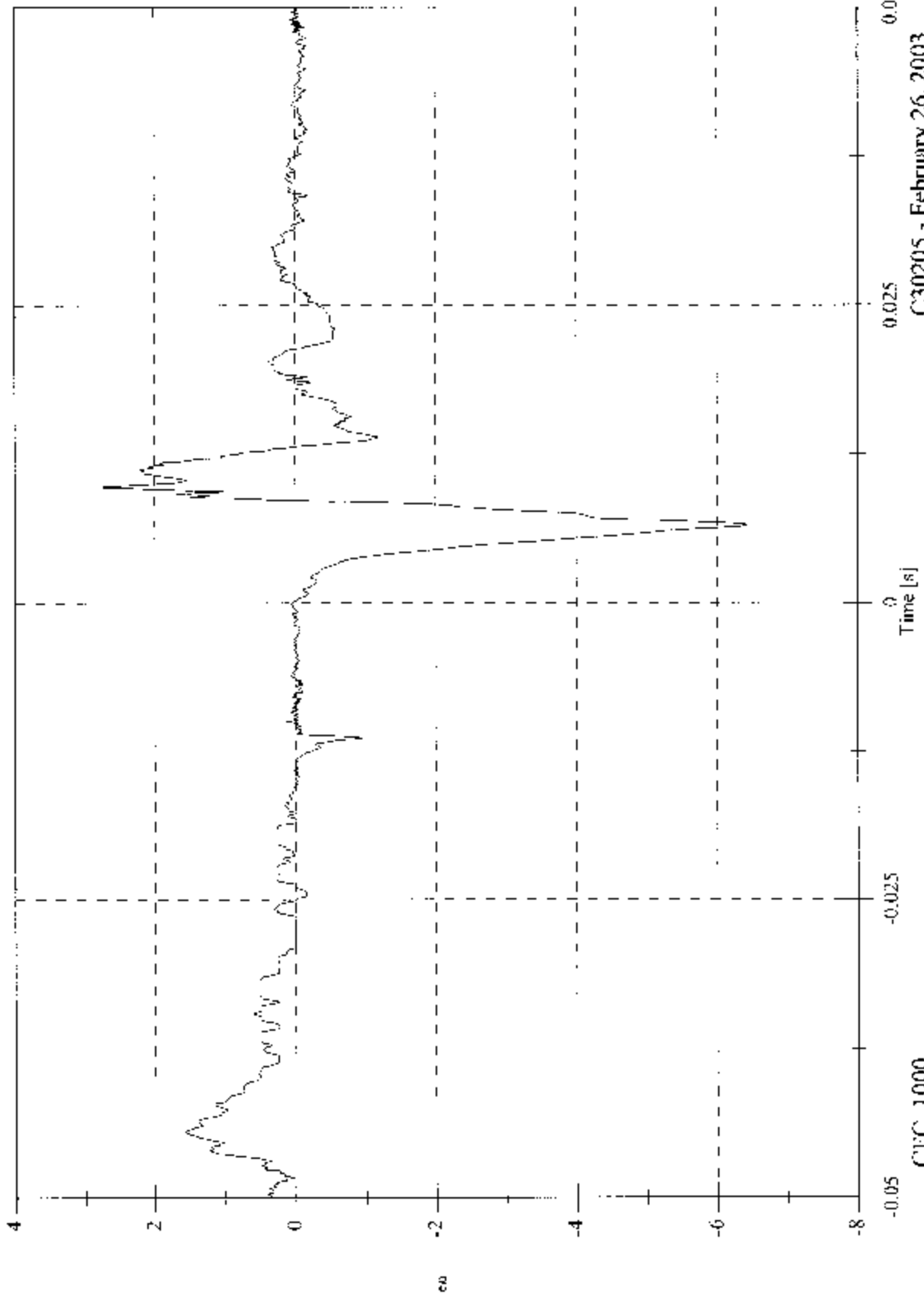
Min: -143.0 [g] at 0.008 [s]



C30205 - February 26, 2003

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP
Headform Y Acceleration

Max: 2.8 [g] at 0.010 [s]
Min: -6.4 [g] at 0.007 [s]

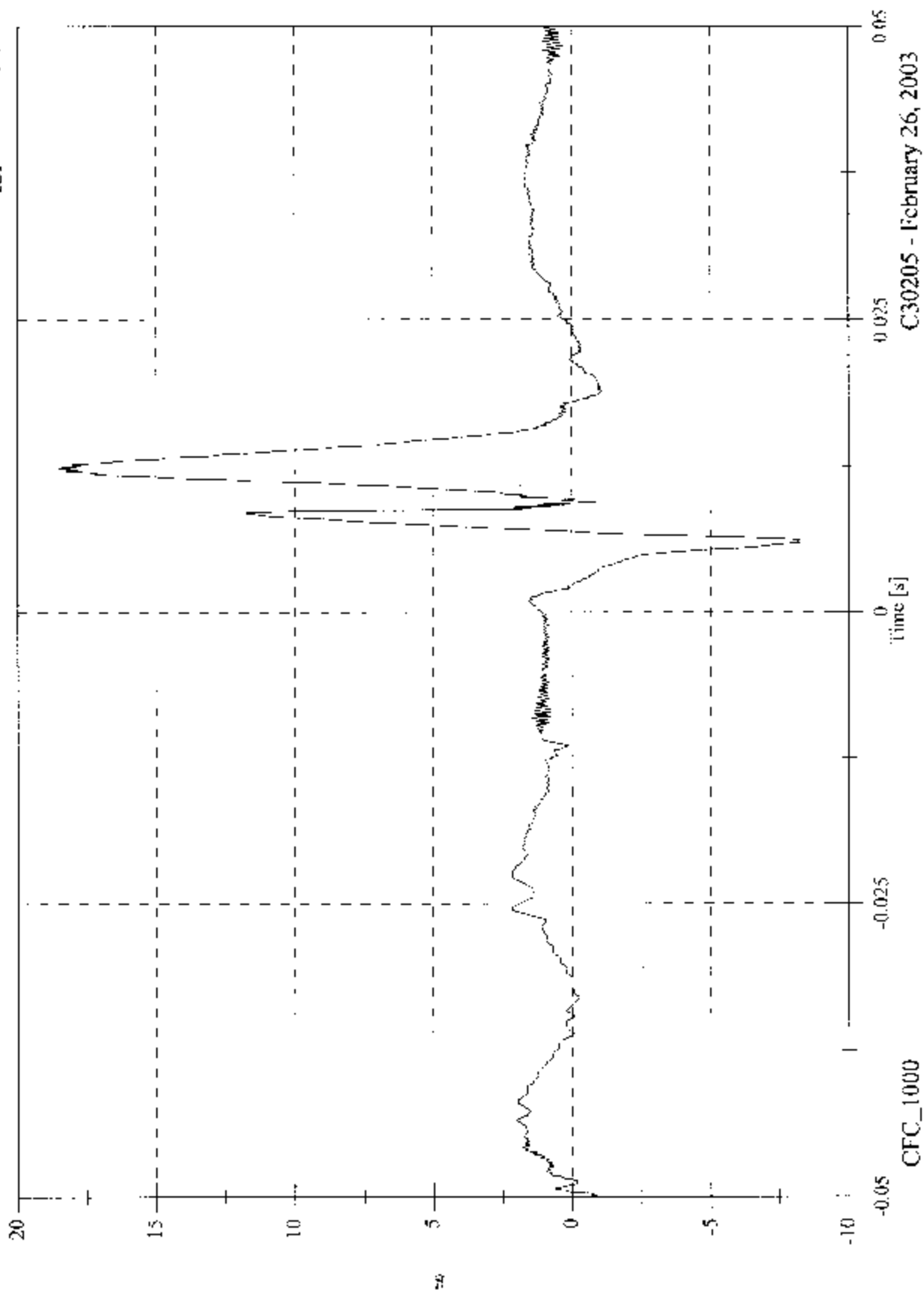


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FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP
Headform 7: Acceleration

Max: 18.6 [g] at 0.012 [s]

Min: -8.3 [g] at 0.006 [s]

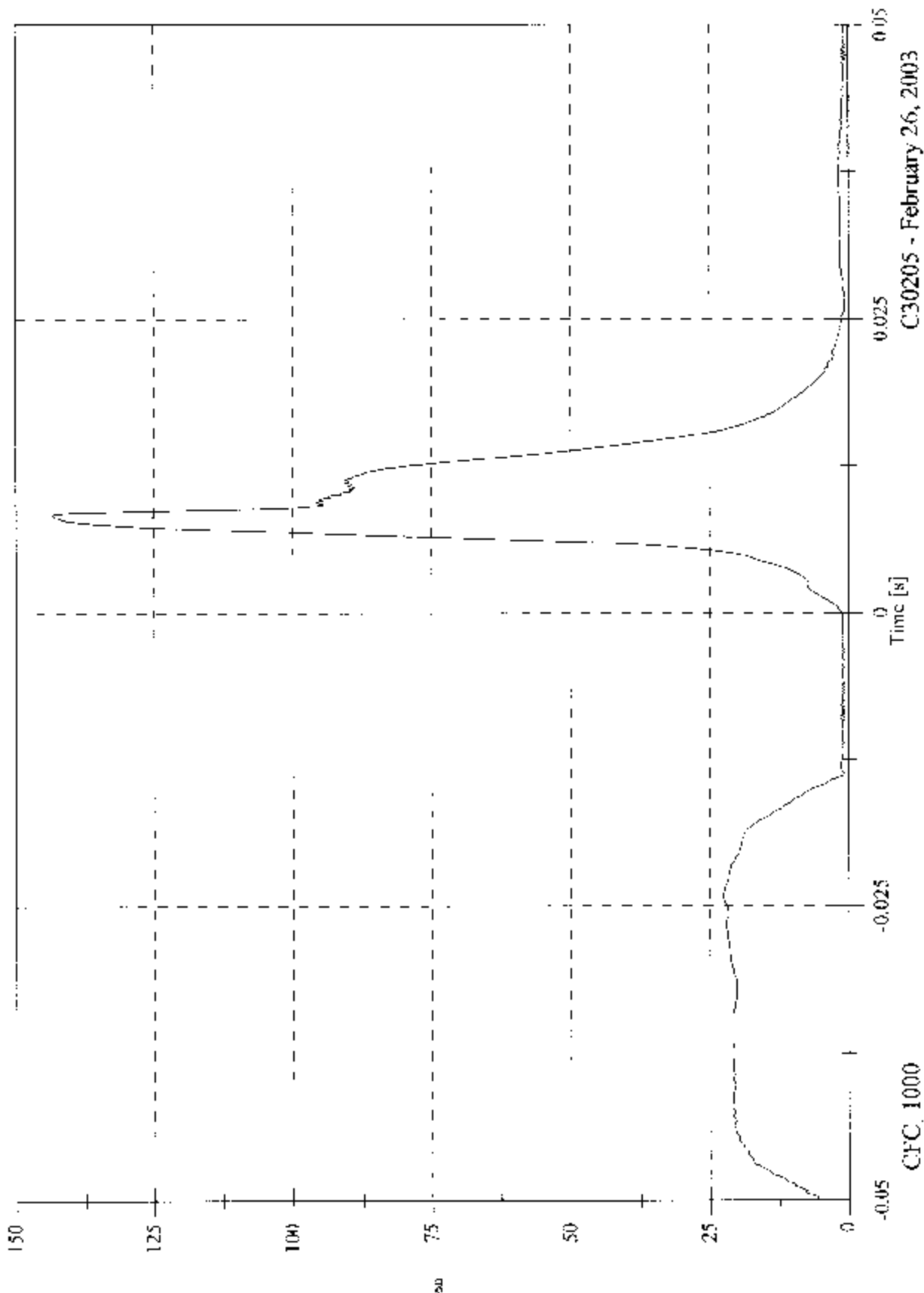


C30205 - February 26, 2003

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Headform Resultant

Max: 143.4 [g] at 0.008 [s]
Min: 0.4 [g] at 0.047 [s]



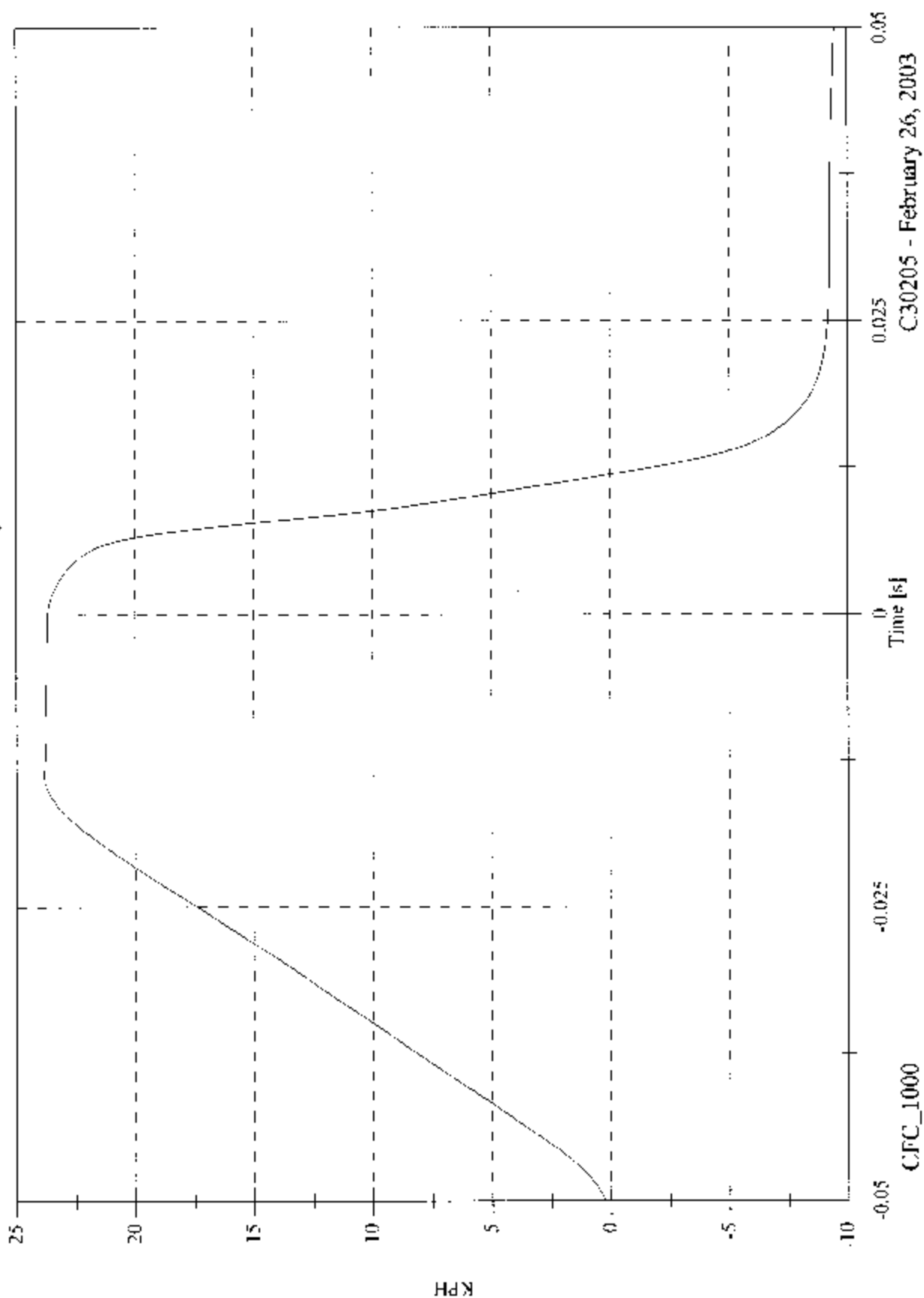
C30205 - February 26, 2003

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Headform Velocity

Max: 23.8 [KPH] at -0.014 [s]

Min: -9.5 [KPH] at 0.050 [s]

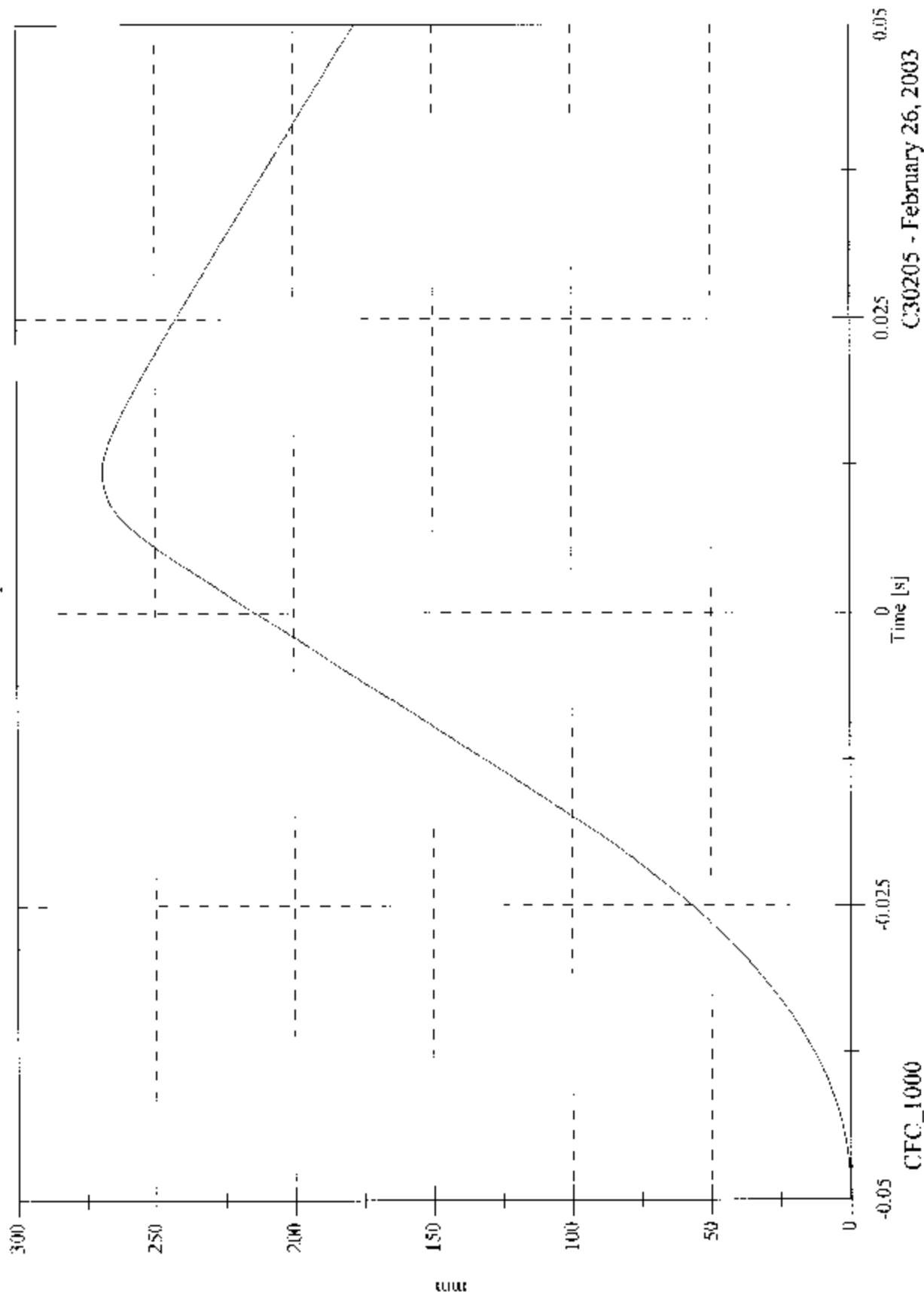


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FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Headform Displacement

Max: 269.1 [mm] at 0.012 [s]
Min: 0.2 [mm] at -0.050 [s]



C30205 DRIVER SIDE RH IMPACT PLOT #6

C30205 - February 26, 2003



Figure : PRE-TEST NH

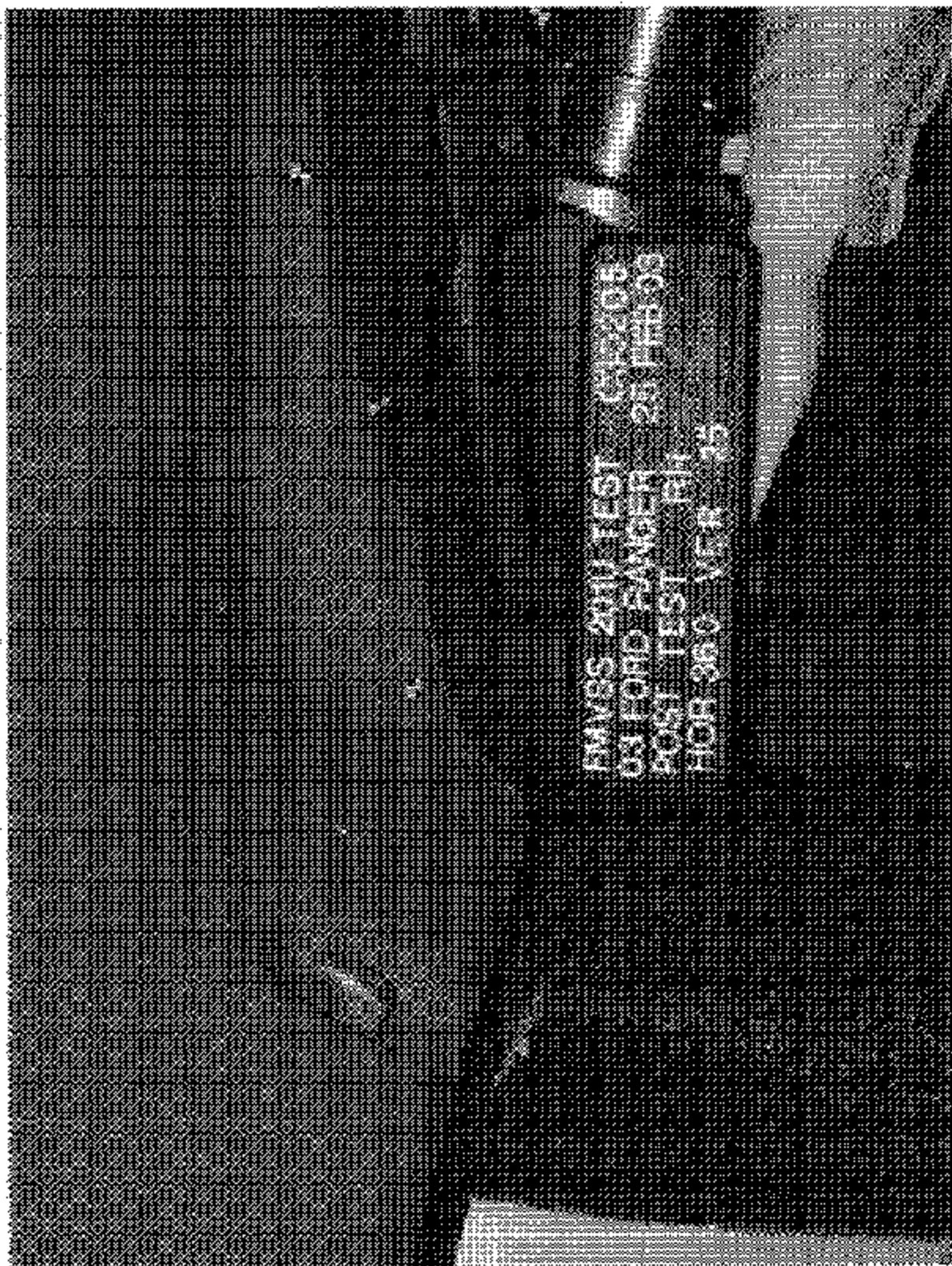
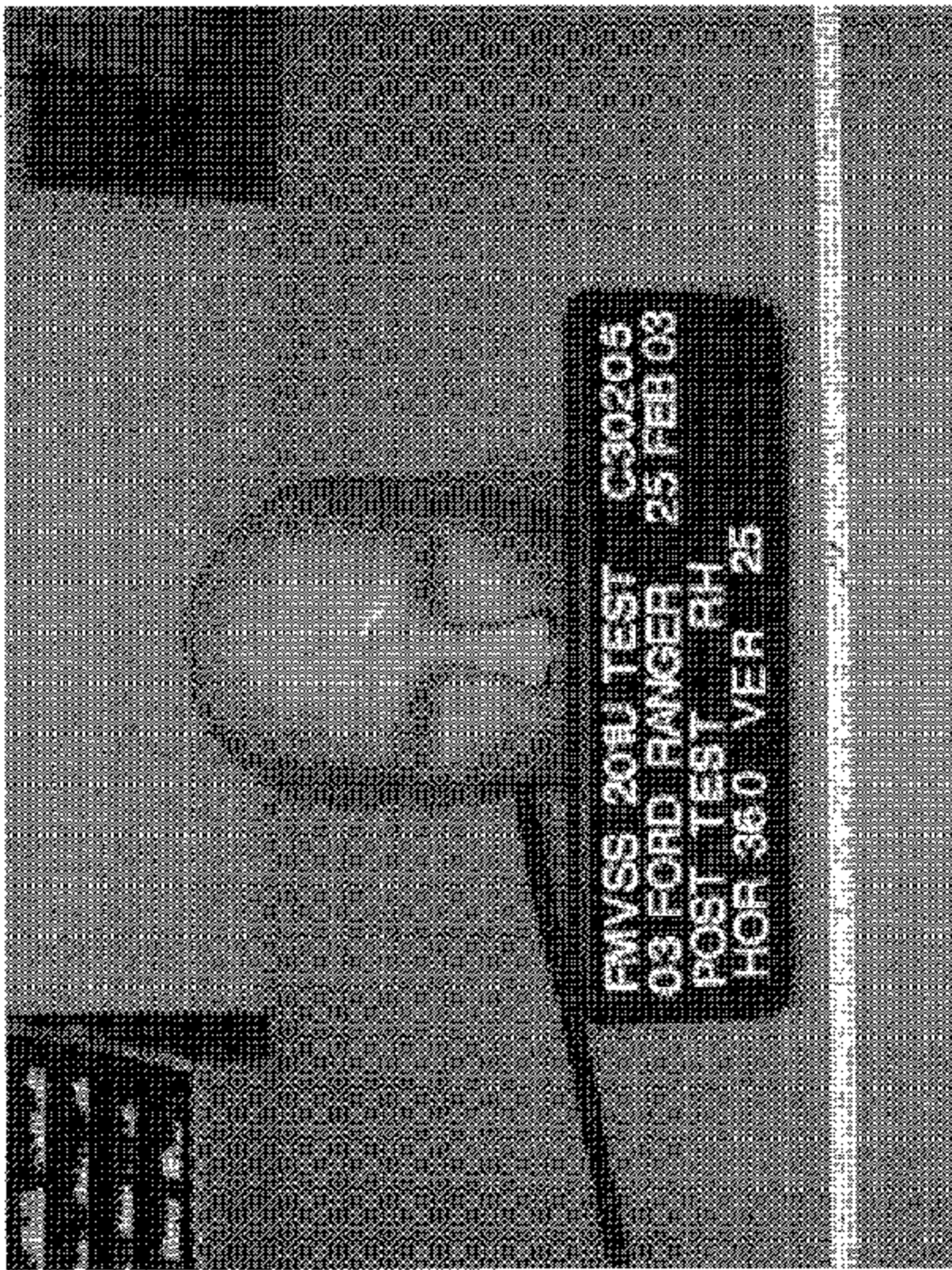


Figure : POST-TEST RH



FMVSS 2011 TEST C30205
03 FORD RANGER 25 FEB 03
POST TEST RH
HOR 360 VER 25

Figure RH HEADFORM

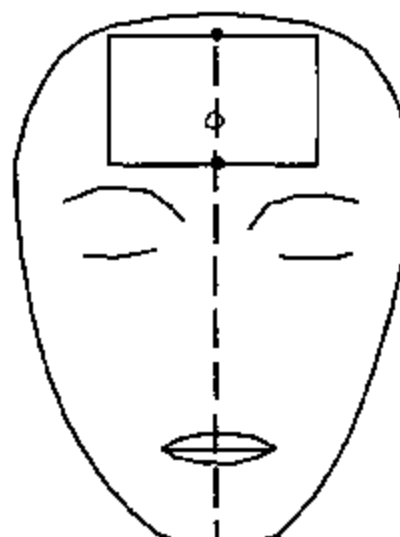
Year/Make/Model/Body Style: 2003 Ford Ranger XLT Supercab
 Vehicle Body Color: Blue VIN: 1FTYR44V43PA35111
 Vehicle NHTSA No.: C30205 Month & Year of Manufacture: 10/2002

Test Number: 8 Test Date: February 26, 2003
 Target Location: DOOR FRAME Target Code: DF3
 Horizontal Impact Angle: 270 ° Vertical Impact Angle: .9 °
 Ambient Temperature: 22 °C Time of Impact: 10:45
 Headform Number: 0062

Impact Point:

Description:

Description: From lower midpoint				
On centerline	19	mm up		
On centerline	0	-	mm right	- mm left



Free Motion HIC: 525.1 HIC(d): 562.6
 Impact Velocity (kph): 23.74 HIC1: 4.4 msec HIC2: 9.1 msec

Post-Test Comments:

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP C30205

FMII Headform 0062

Location: DF3

Test Date: February 26, 2003

Work File: BDF3

-----TEST RESULTS-----

Lab Temperature: 22 C

HICd: 562.6

Lab Humidity: 15 %

HIC (36ms): 525.1

Velocity at Impact: 23.74 KPH

t1: 4.4 msec

t2: 9.1 msec

Free Flight Distance: 193.24 mm

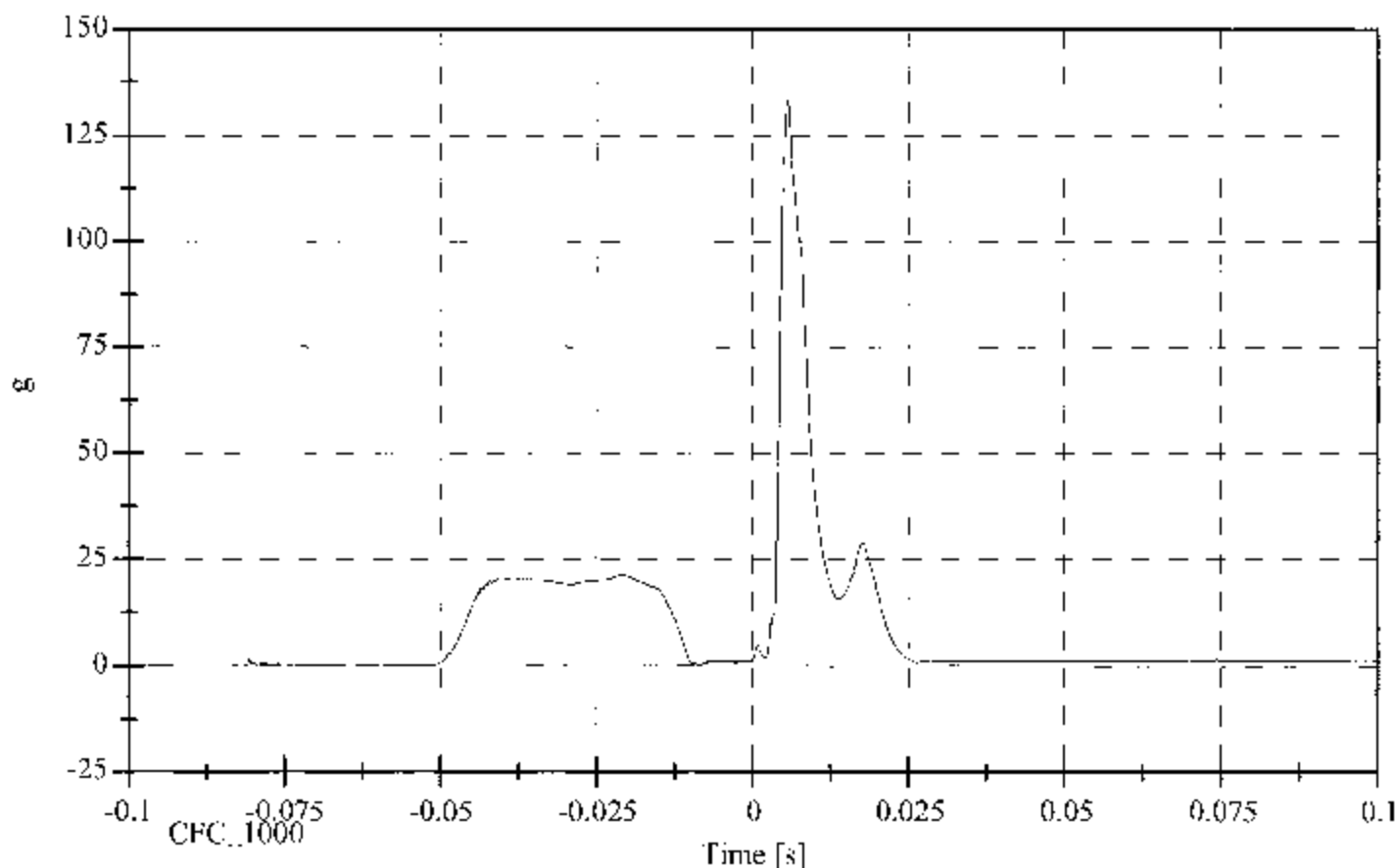
Duration: 4.7 msec

Average Acceleration: 8.2 g

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP
Headform Resultant

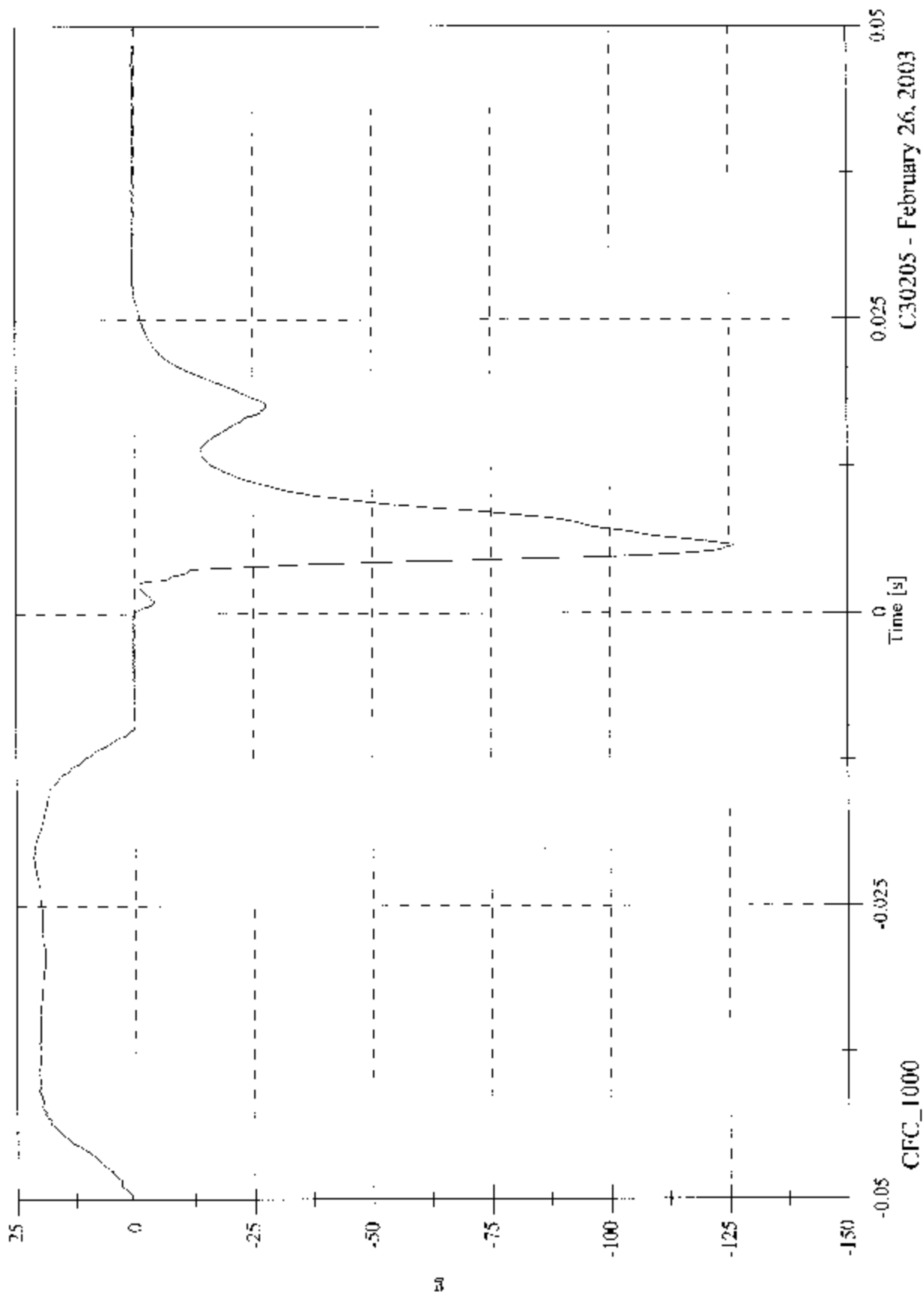
Max: 133.2 [g] at 0.006 [s]

Min: -0.0 [g] at -0.097 [s]



FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP
 Headform X Acceleration

Max: 21.3 [g] at -0.021 [s]
 Min: -126.0 [g] at 0.006 [s]

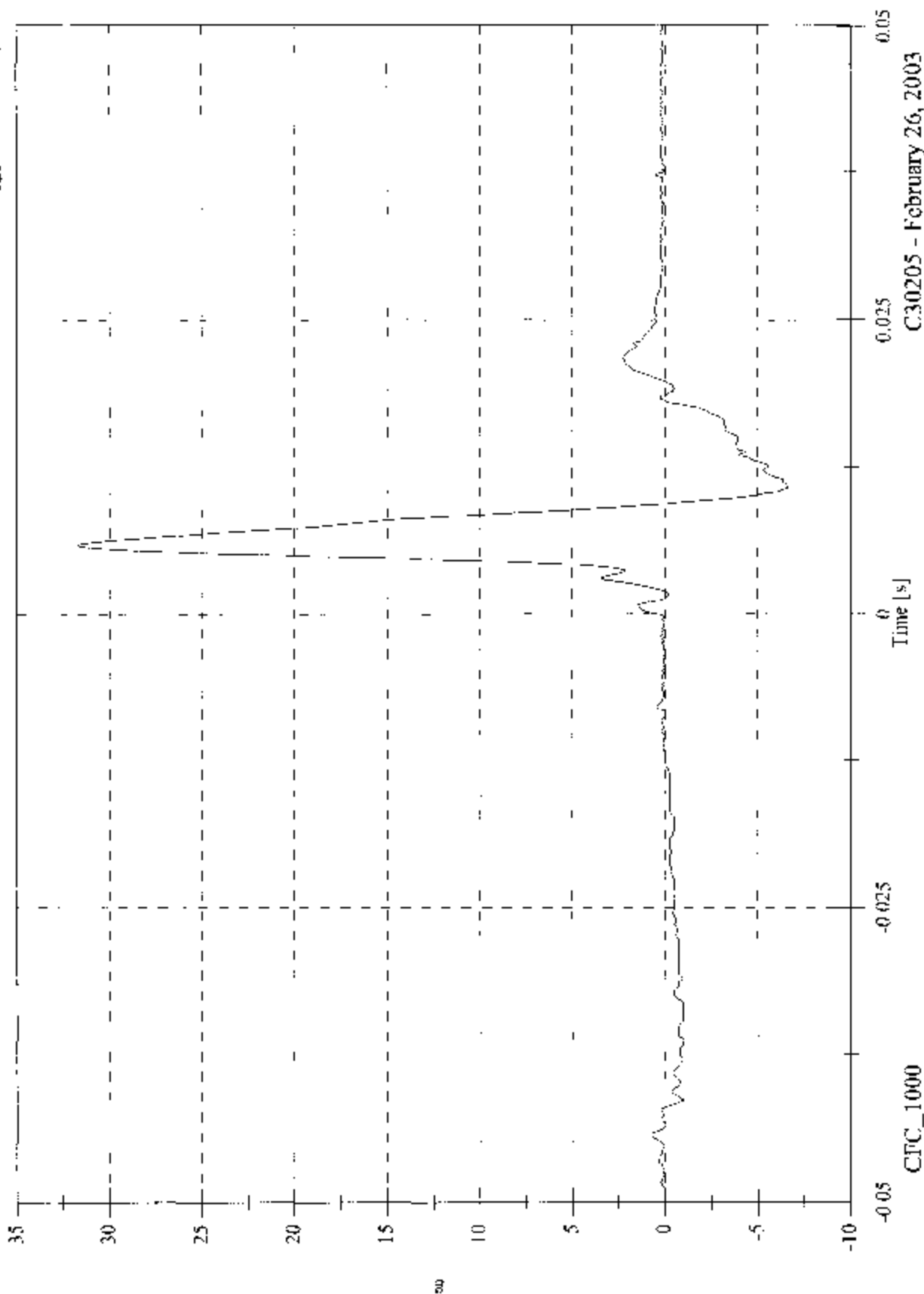


C30205 - February 26, 2003

FMVSS 2010 IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Max: 31.7 [g] at 0.006 [s]
Min: -6.6 [g] at 0.011 [s]

Headform Y Acceleration



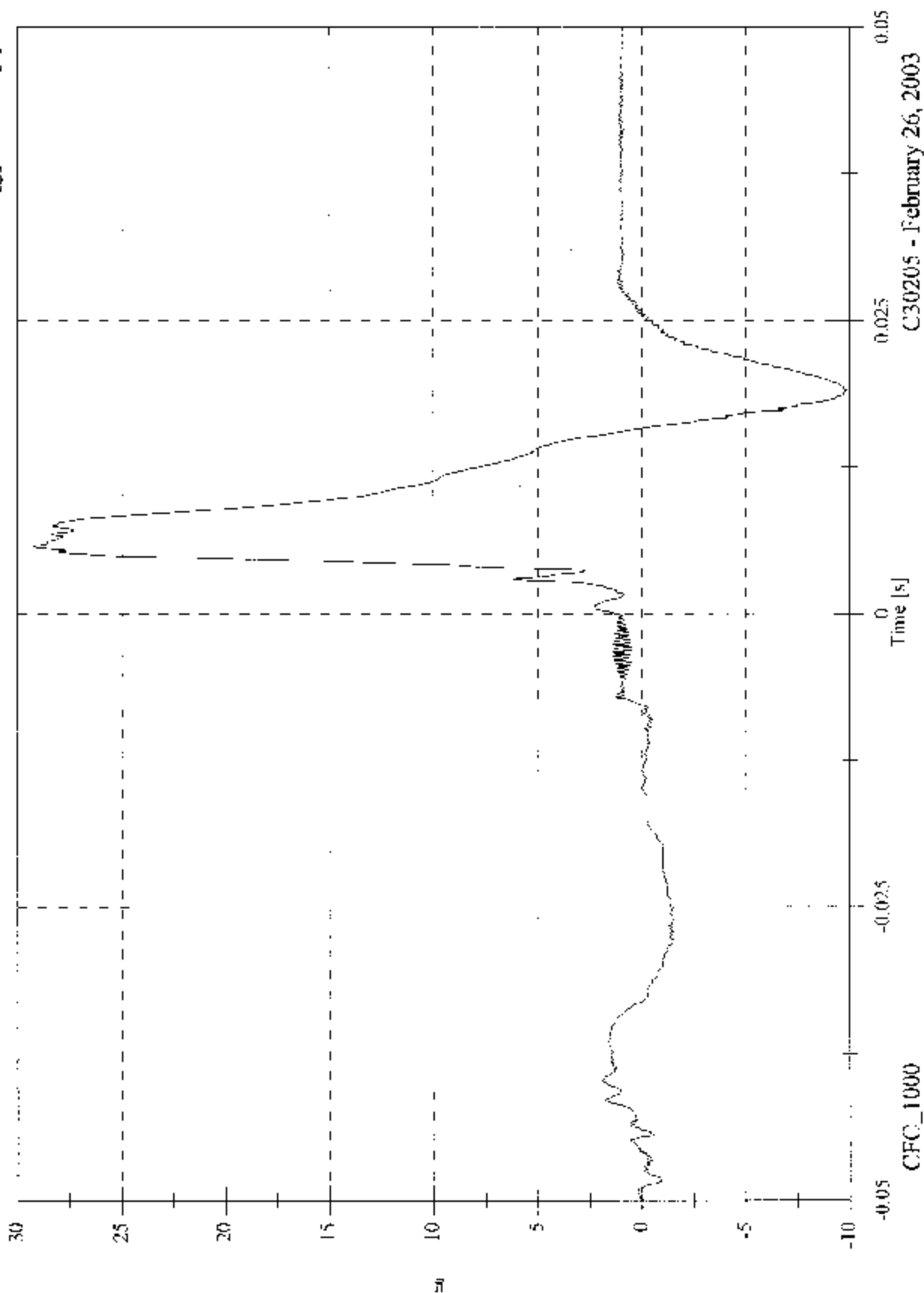
C30205 - February 26, 2003

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Headform Z Acceleration

Max: 29.2 [g] at 0.006 [s]

Min: -9.9 [g] at 0.019 [s]



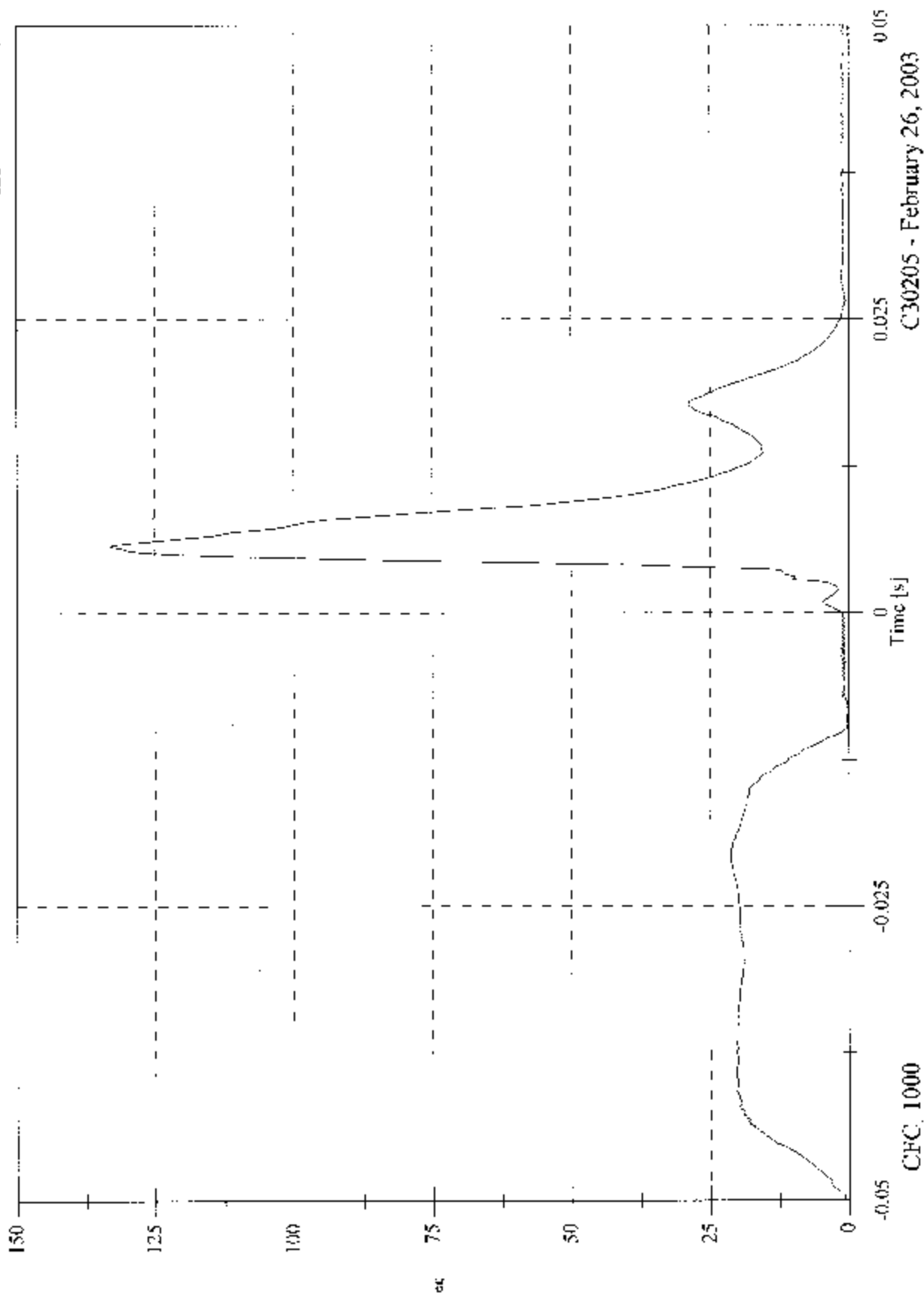
C30205 - February 26, 2003

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Headform Resultant

Max: 133.2 [g] at 0.006 [s]

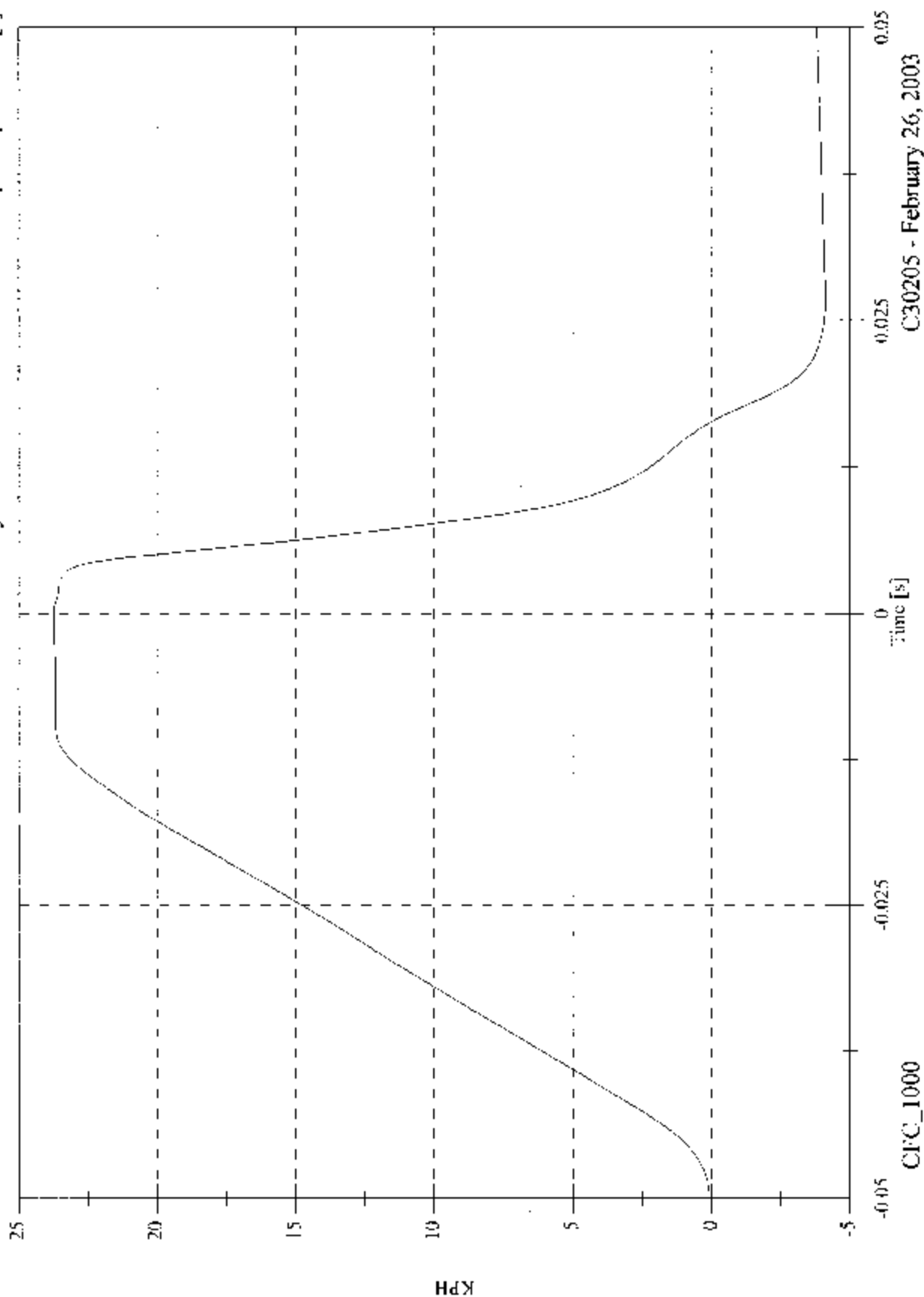
Min: 0.1 [g] at -0.008 [s]



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FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP
Max: 23.7 [KPH] at 0.000 [s]
Min: -4.1 [KPH] at 0.027 [s]

Headform Velocity



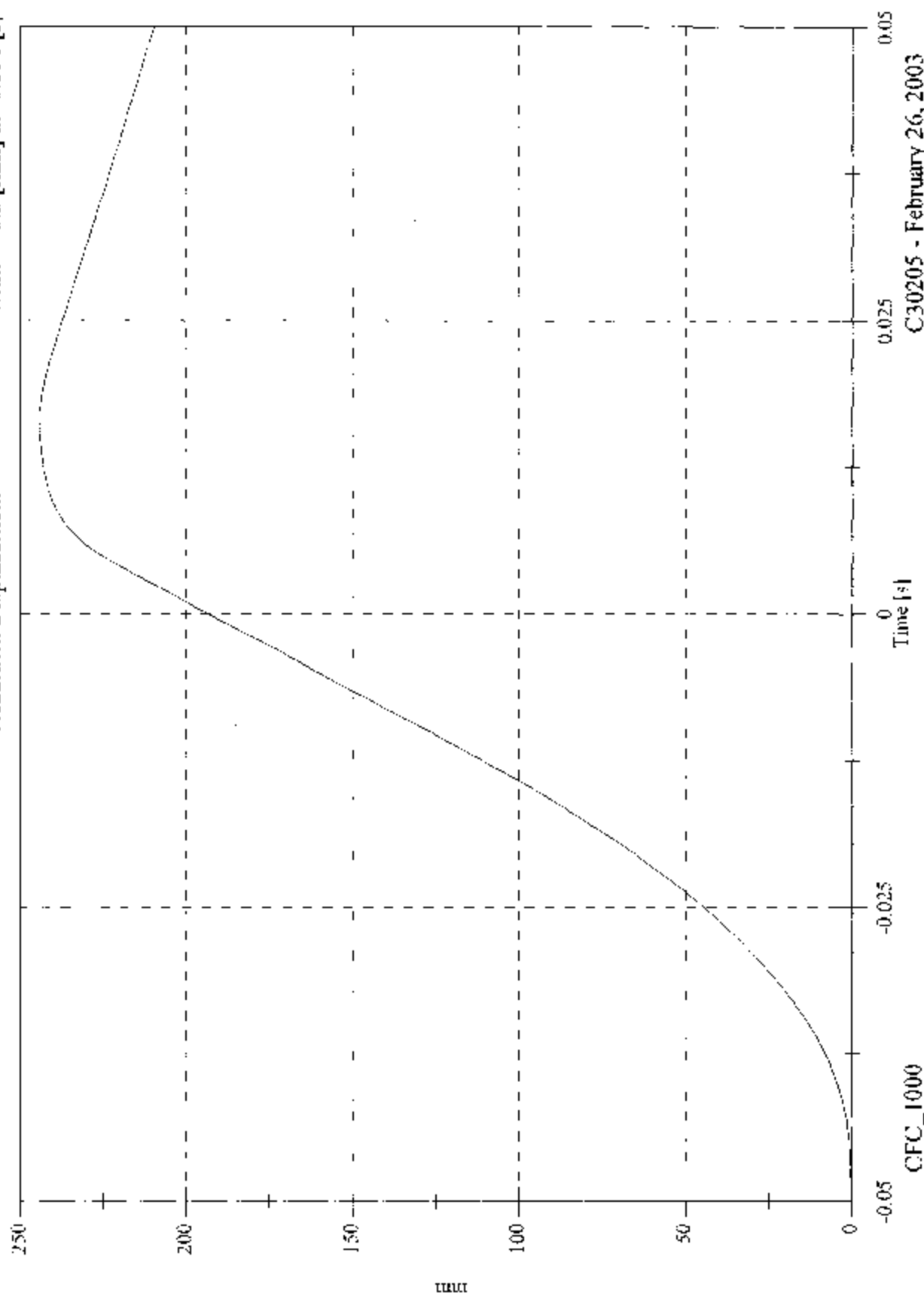
C30205 - February 26, 2003

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Headform Displacement

Max: 244.2 [mm] at 0.016 [s]

Min: 0.3 [mm] at -0.050 [s]



C30205 - February 26, 2003



Figure : PRE-TEST DEF



Figure : POST-TEST DF3

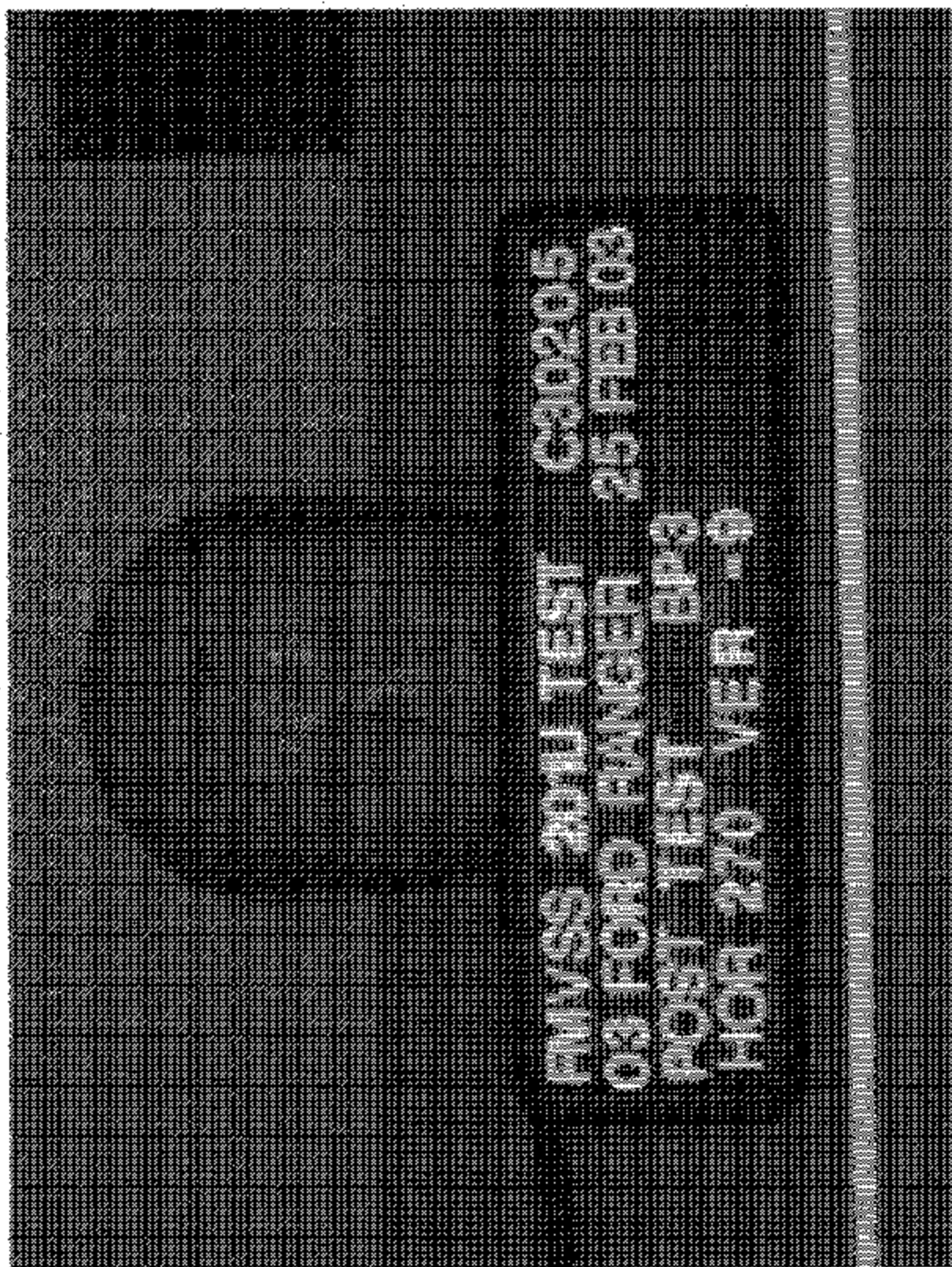


Figure 1: DKS HEADFORM

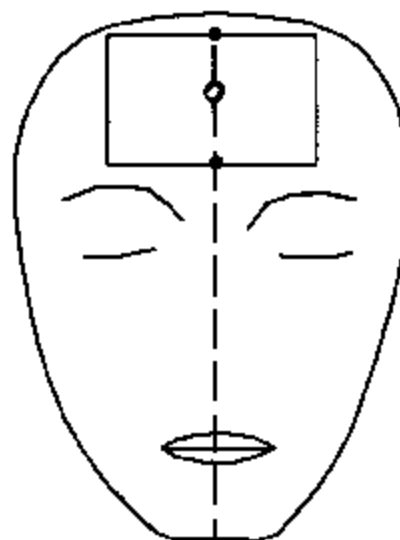
Year/Make/Model/Body Style: 2003 Ford Ranger XLT Supercab
Vehicle Body Color: Blue VIN: 1F1YR44V43PA35111
Vehicle NHTSA No.: C30205 Month & Year of Manufacture: 10/2002

Test Number: 9 Test Date: February 26, 2003
Target Location: UPPER ROOF Target Code: URBP
Horizontal Impact Angle: 270 ° Vertical Impact Angle: 33 °
Ambient Temperature: 22 °C Time of Impact: 11:40
Headform Number: 1255

Impact Point:

Description:

Description:	From lower midpoint				
On centerline	70	mm up			
On centerline	0	-	mm right		mm left



Free Motion HIC: 631.1 HIC(d): 642.6
Impact Velocity (kph): 23.68 HIC1: 2.6 msec HIC2: 10.8 msec

Post-Test Comments:

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP C30205

FMII Headform 1255

Location: URBP

Test Date: February 26, 2003

Work File: URBP

-----TEST RESULTS-----

Lab Temperature: 22 C

HICd: 642.6

Lab Humidity: 15 %

HIC (36ms): 631.1

Velocity at Impact: 23.68 KPH

t1: 2.5 msec

t2: 10.7 msec

Free Flight Distance: 216.74 mm

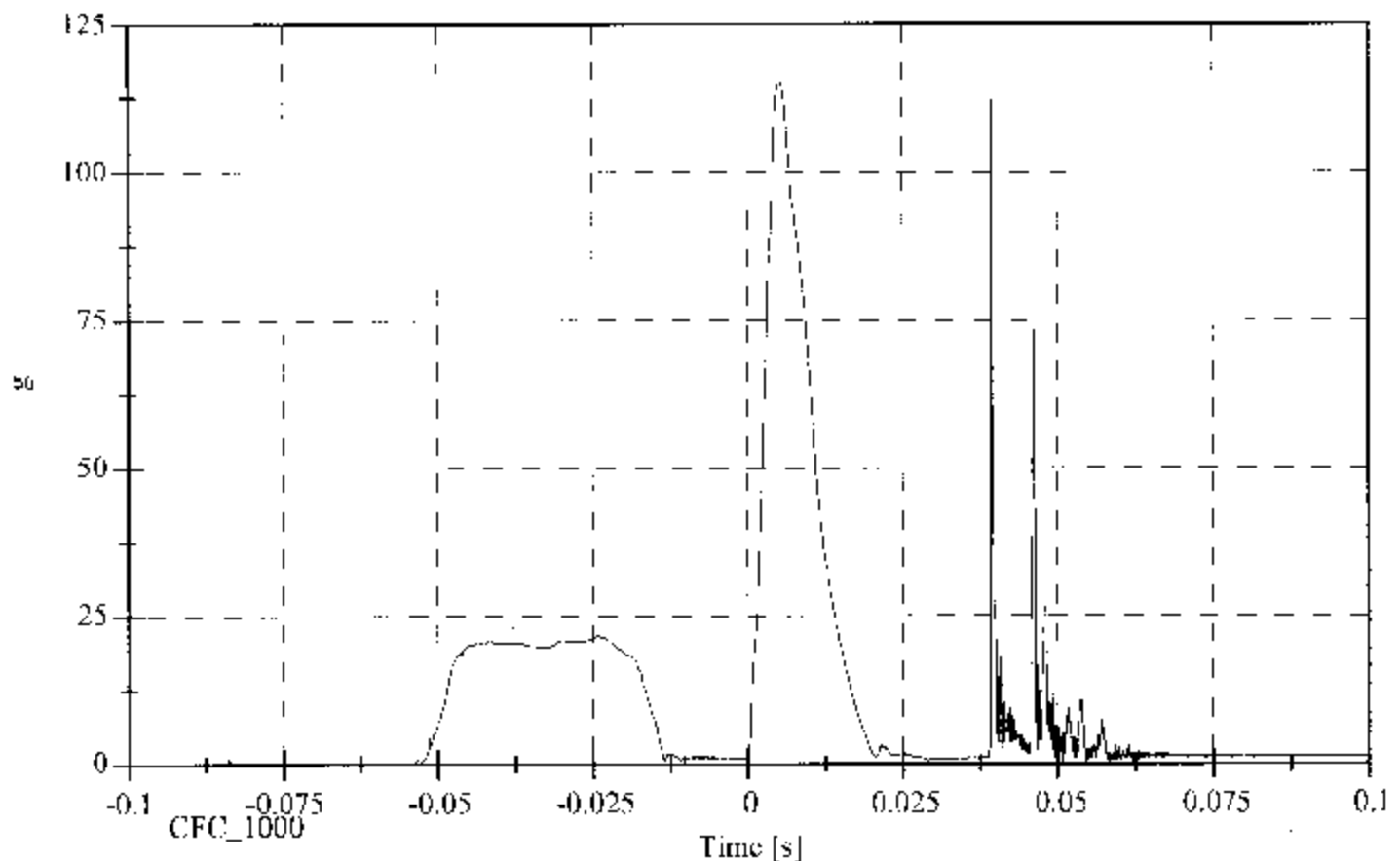
Duration: 8.2 msec

Average Acceleration: 9.8 g

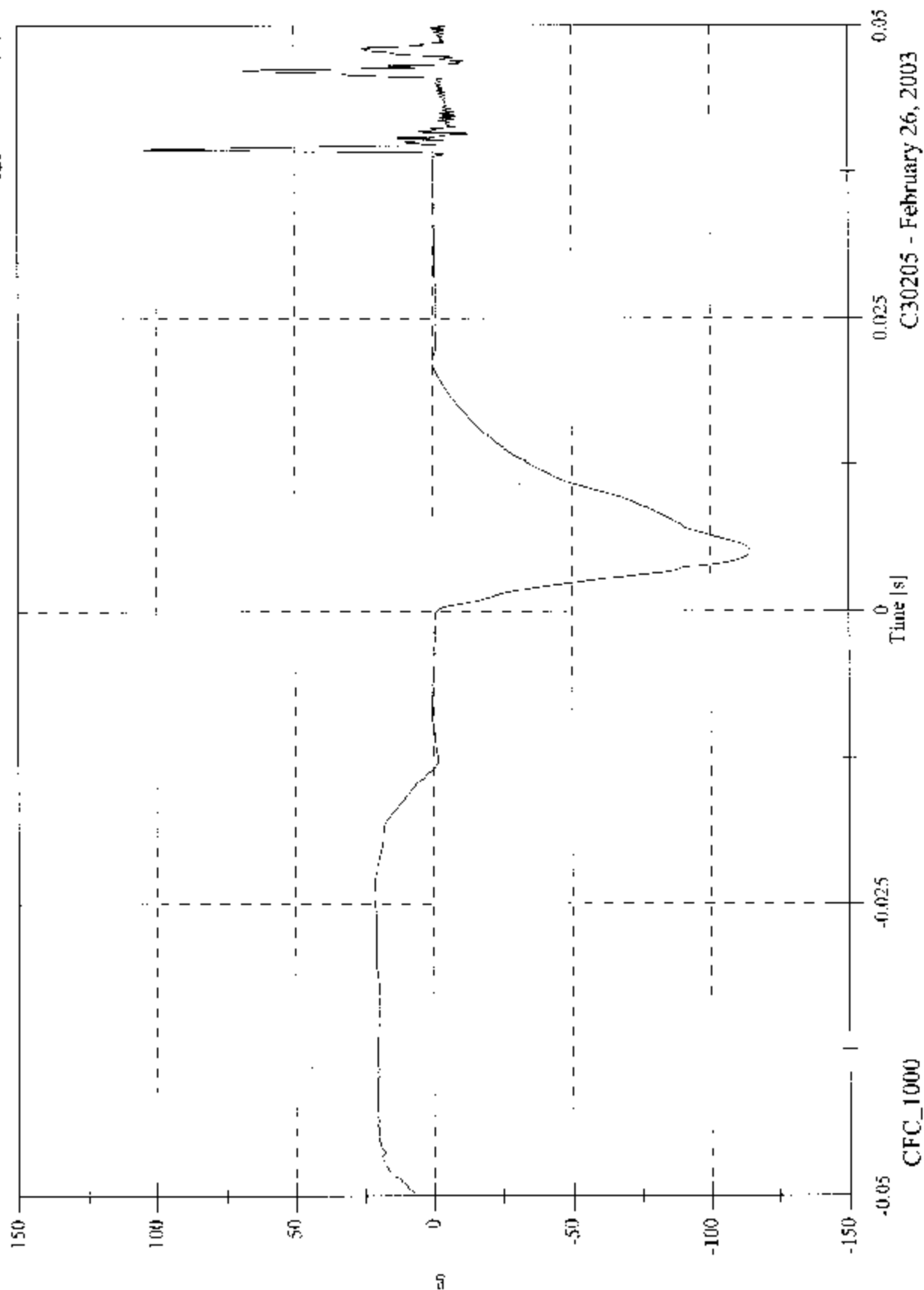
FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP
Headform Resultant

Max: 115.4 [g] at 0.005 [s]

Min: 0.0 [g] at -0.086 [s]



FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP
Headform X Acceleration
Max: 104.1 [g] at 0.039 [s]
Min: -114.5 [g] at 0.005 [s]



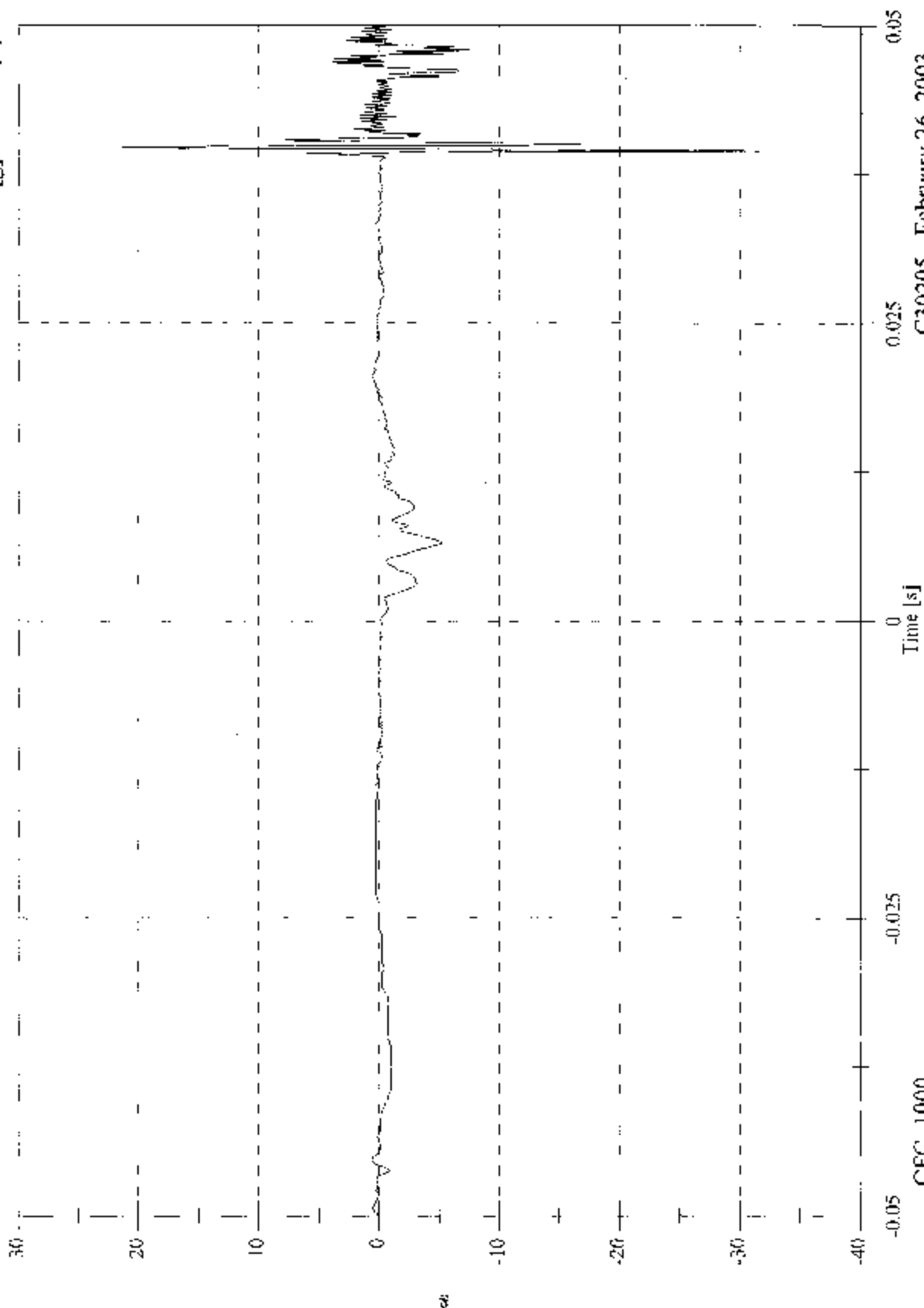
C30205 - February 26, 2003

C30205 DRIVER SIDE URBP IMPACT PLOT #1

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Headform Y Acceleration

Max: 21.4 [g] at 0.040 [s]
Min: -31.5 [g] at 0.040 [s]



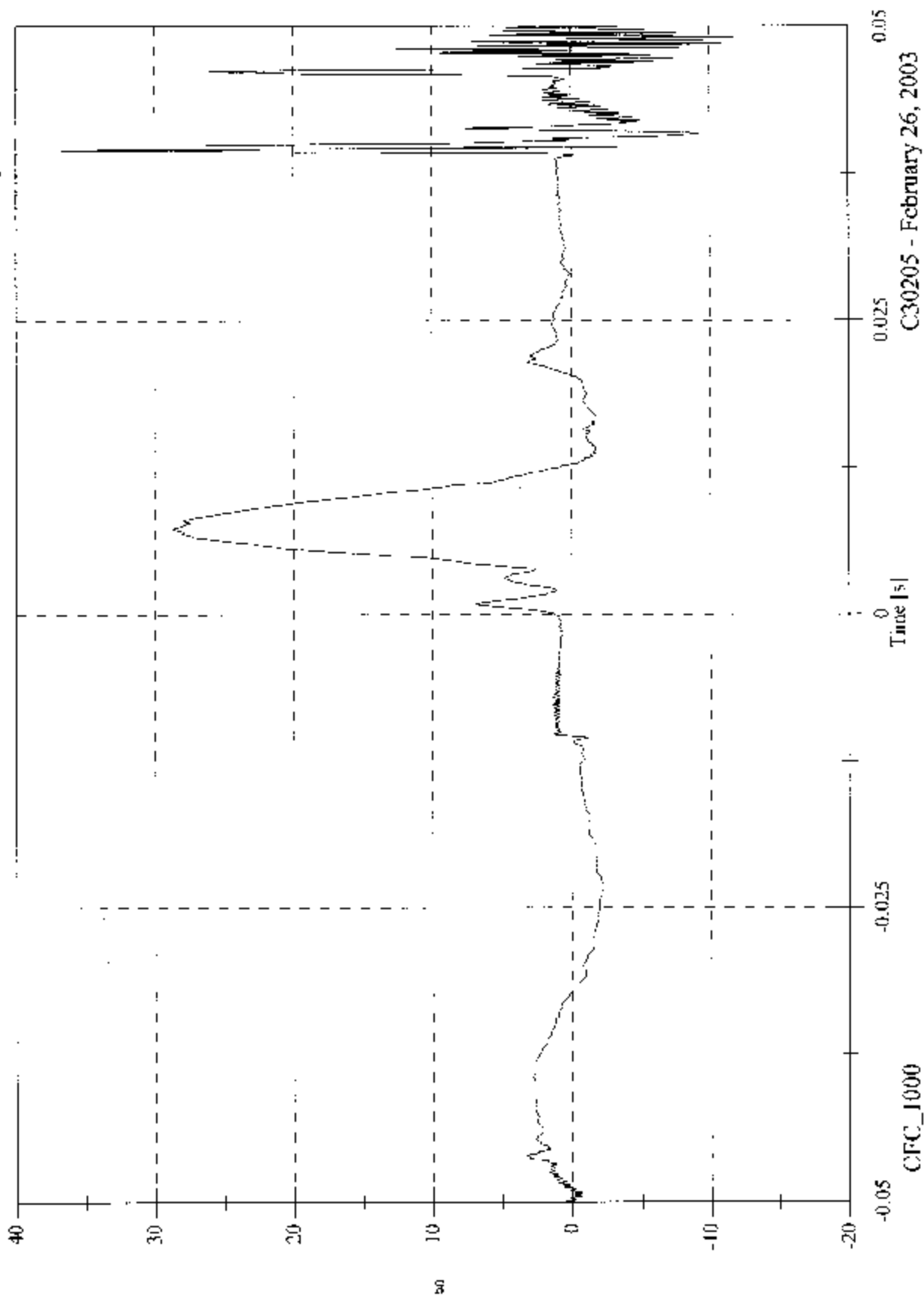
C30205 - February 26, 2003

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Headform Z Acceleration

Max: 36.8 [g] at 0.039 [s]

Min: -11.8 [g] at 0.049 [s]

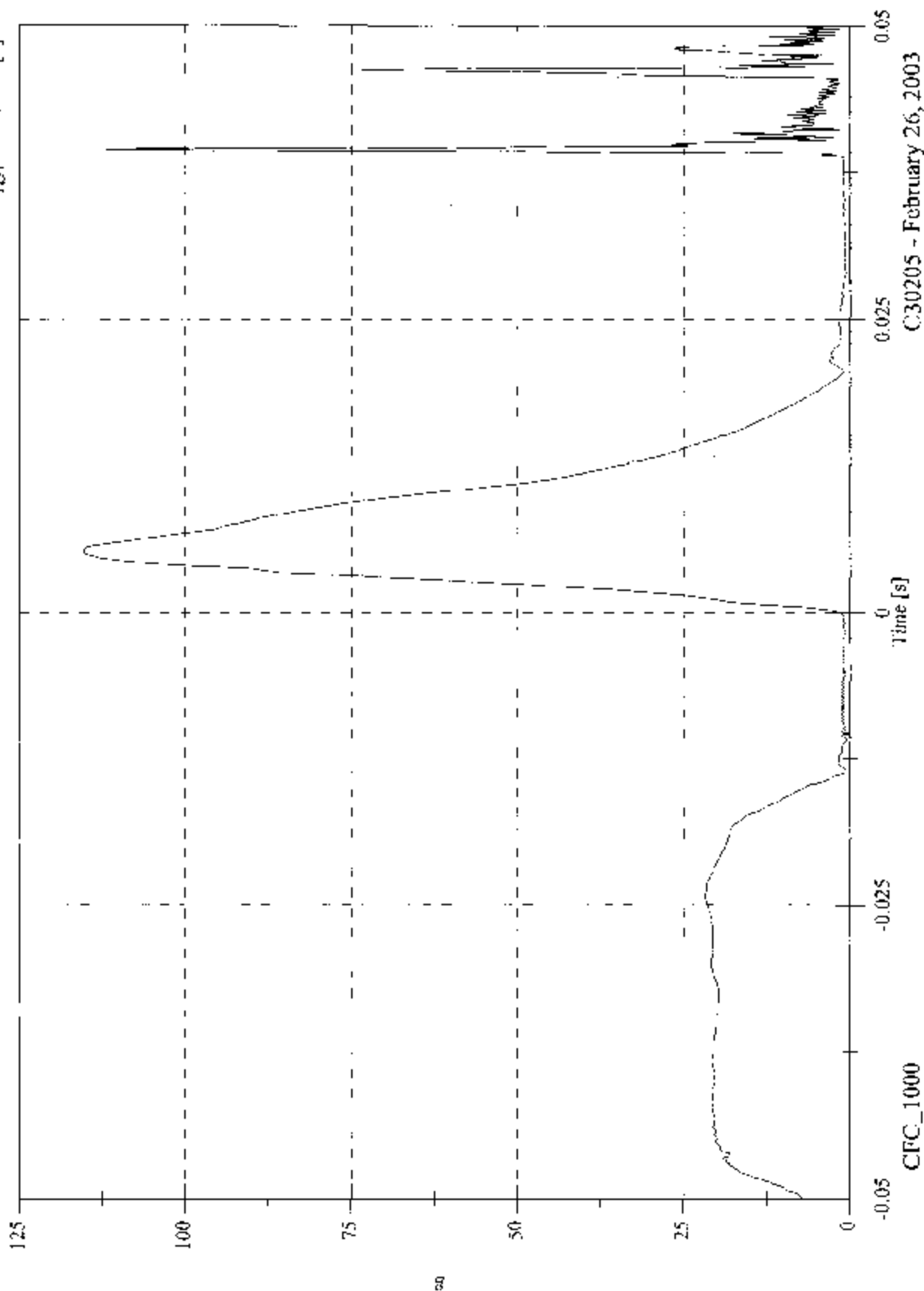


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FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

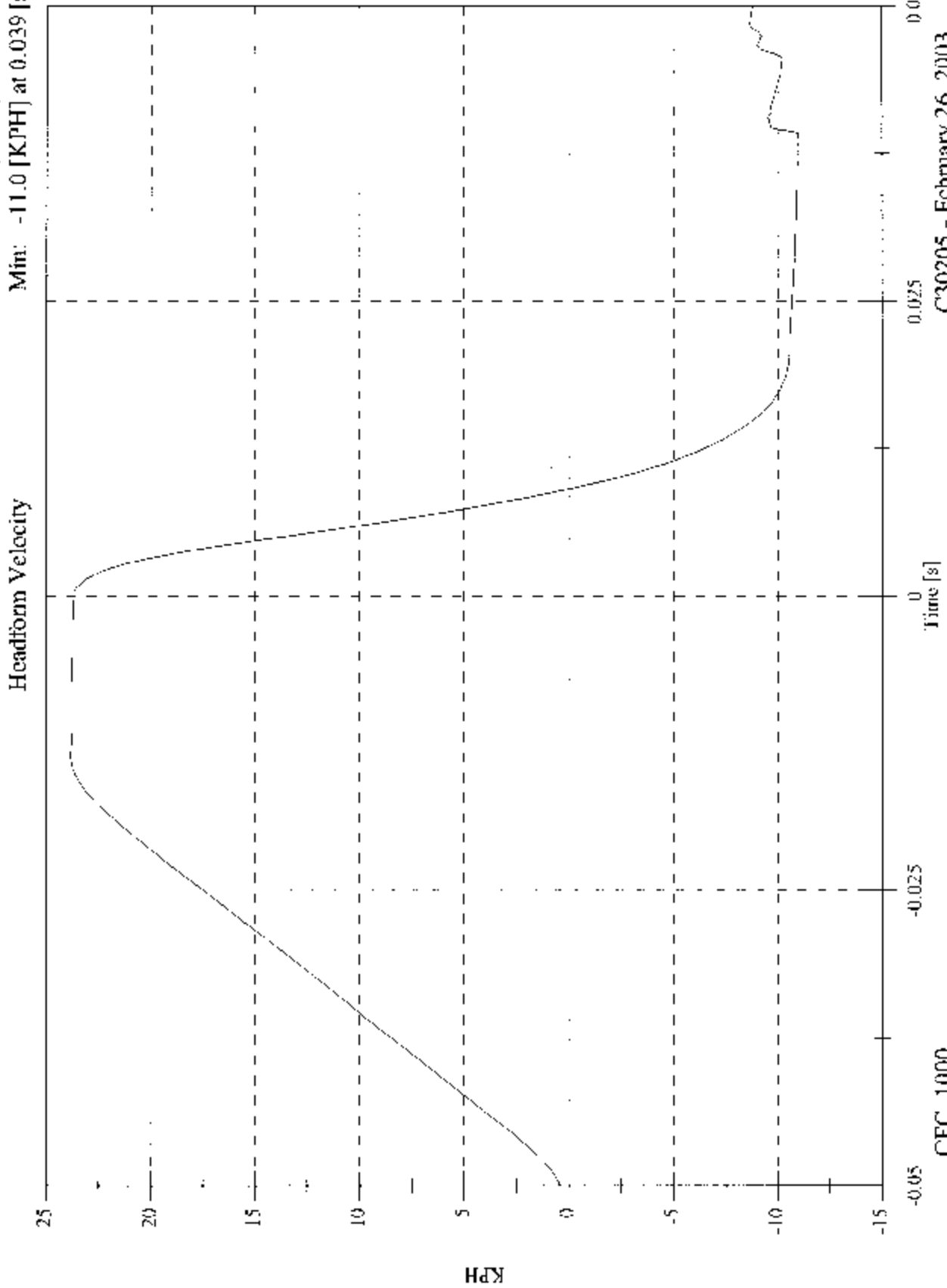
Headform Resultant

Max: 115.4 [g] at 0.005 [s]
Min: 0.2 [g] at -0.010 [s]



FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP
Max: 23.8 [KPH] at -0.014 [s]
Min: -11.0 [KPH] at 0.039 [s]

Headform Velocity

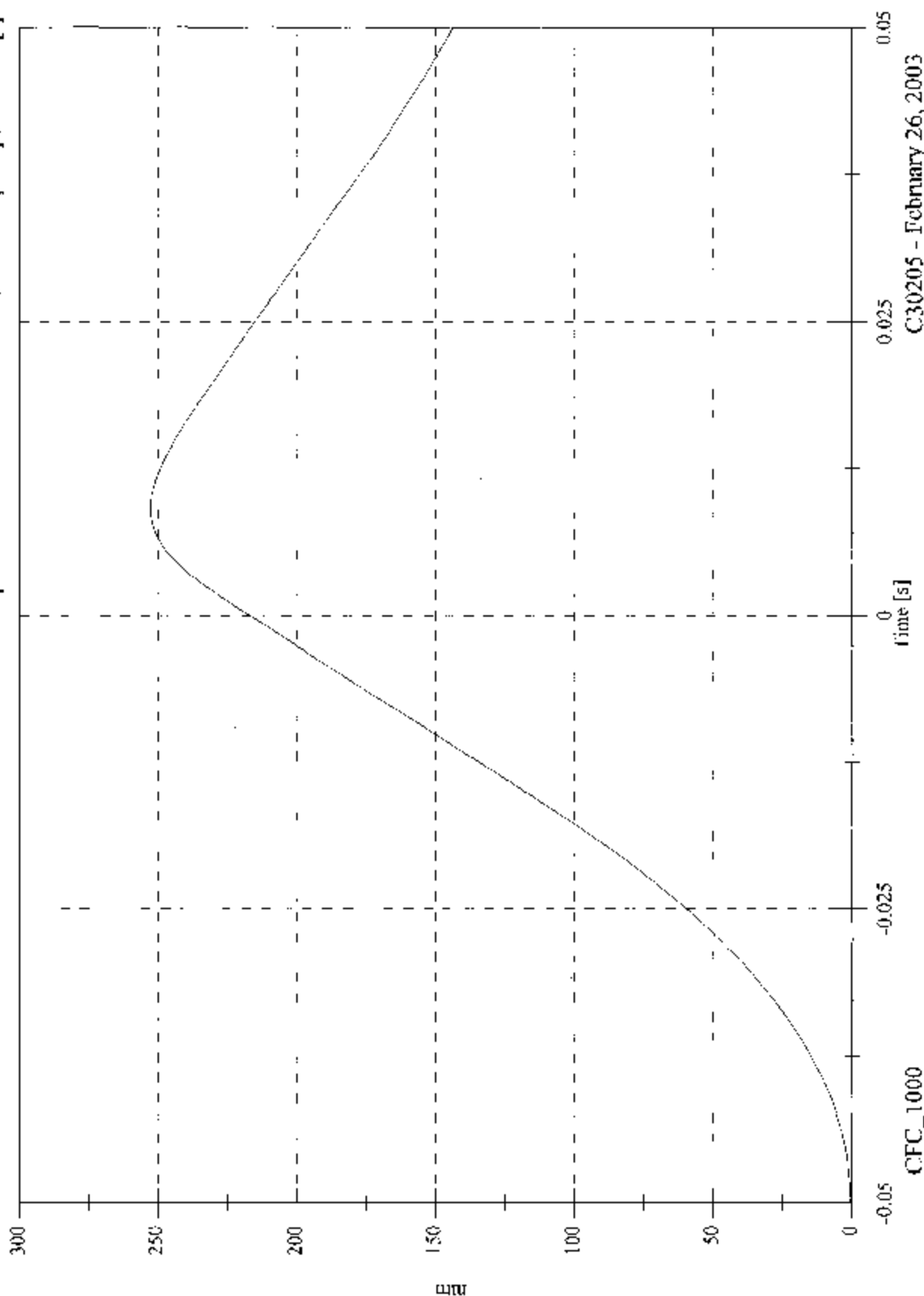


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FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Headform Displacement

Max: 252.5 [mm] at 0.009 [s]
Min: 0.6 [mm] at -0.050 [s]



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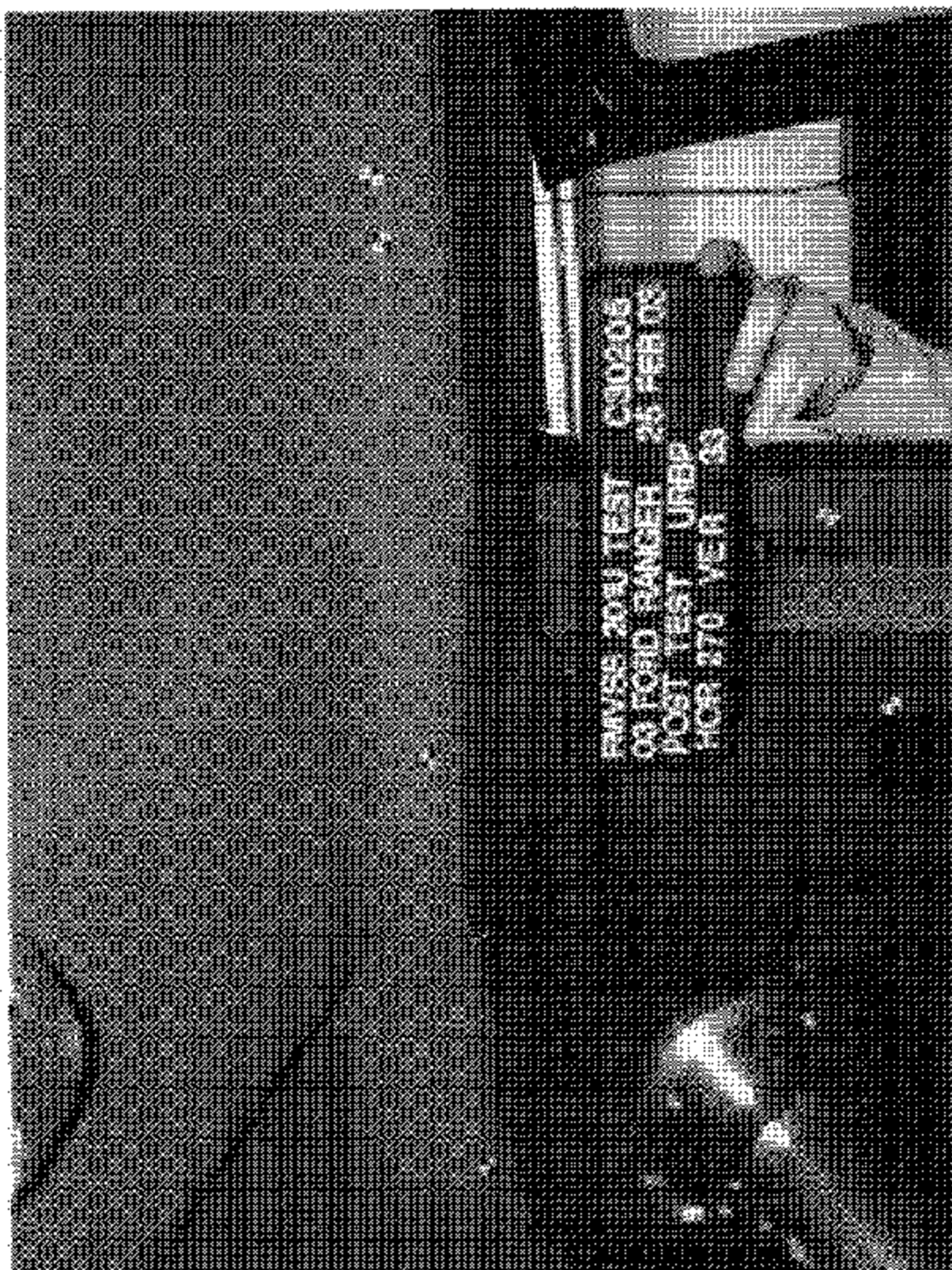


Figure : POST-TEST URBAN

FMVSS 201W TEST C30205
03 FORD RANGER 25 FEB 03
POST TEST URBP
HOR 270 VER 33

Figure : URBP HEADFORM

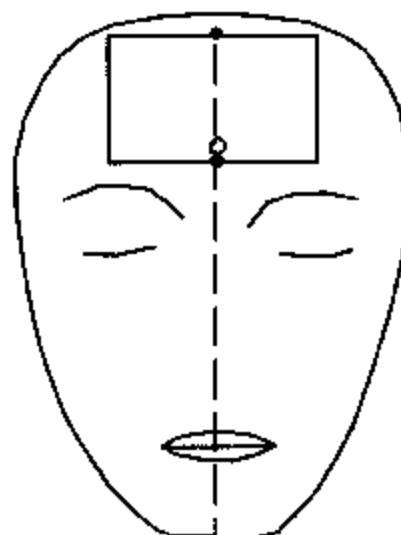
Year/Make/Model/Body Style: 2003 Ford Ranger XLT Supercab
 Vehicle Body Color: Blue VIN: 1FTYR44V43PA35111
 Vehicle NHTSA No.: C30205 Month & Year of Manufacture: 10/2002

Test Number: 10 Test Date: February 26, 2003
 Target Location: A-PILLAR Target Code: AP2
 Horizontal Impact Angle: 205 ° Vertical Impact Angle: 5 °
 Ambient Temperature: 22 °C Time of Impact: 2:00
 Headform Number: 805

Impact Point:

Description:

Description: From lower midpoint				
On centerline	6	mm up		
On centerline	0	-	mm right	- mm left



Free Motion HIC: 352.1 HIC(d): 432.0
 Impact Velocity (kph): 23.41 HIC1: 2.1 msec HIC12: 9.8 msec

Post-Test Comments:

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP C30205

FMII Headform 805

Location: AP2

Test Date: February 26, 2003

Work File: AP2

TEST RESULTS

Lab Temperature: 22 C

HICd: 432.0

Lab Humidity: 15 %

HIC (36ms): 352.1

Velocity at Impact: 23.41 KPH

t1: 2.1 msec

t2: 9.8 msec

Free Flight Distance: 211.02 mm

Duration: 7.8 msec

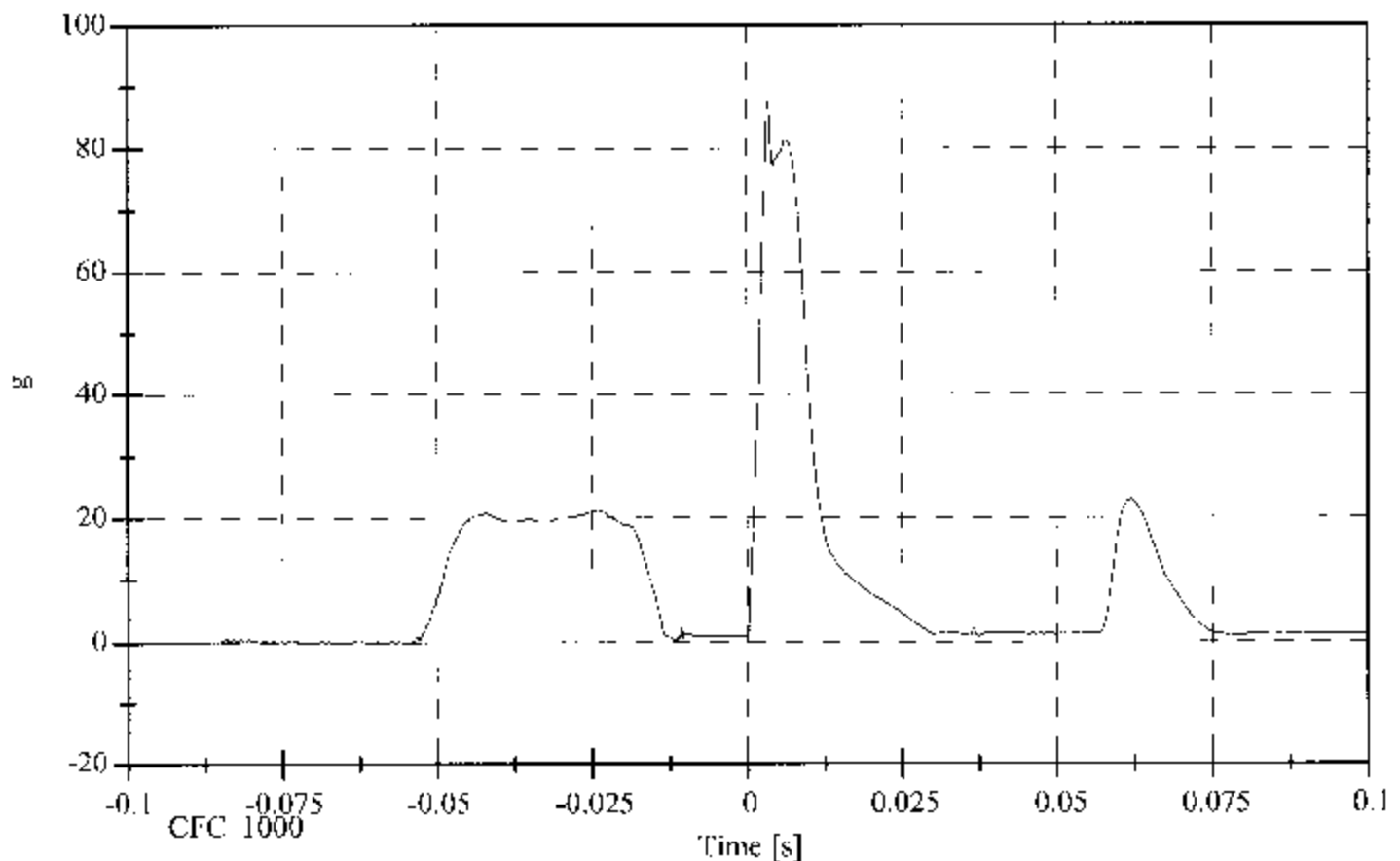
Average Acceleration: 8.9 g

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Max: 87.7 [g] at 0.003 [s]

Min: -0.0 [g] at -0.099 [s]

Headform Resultant

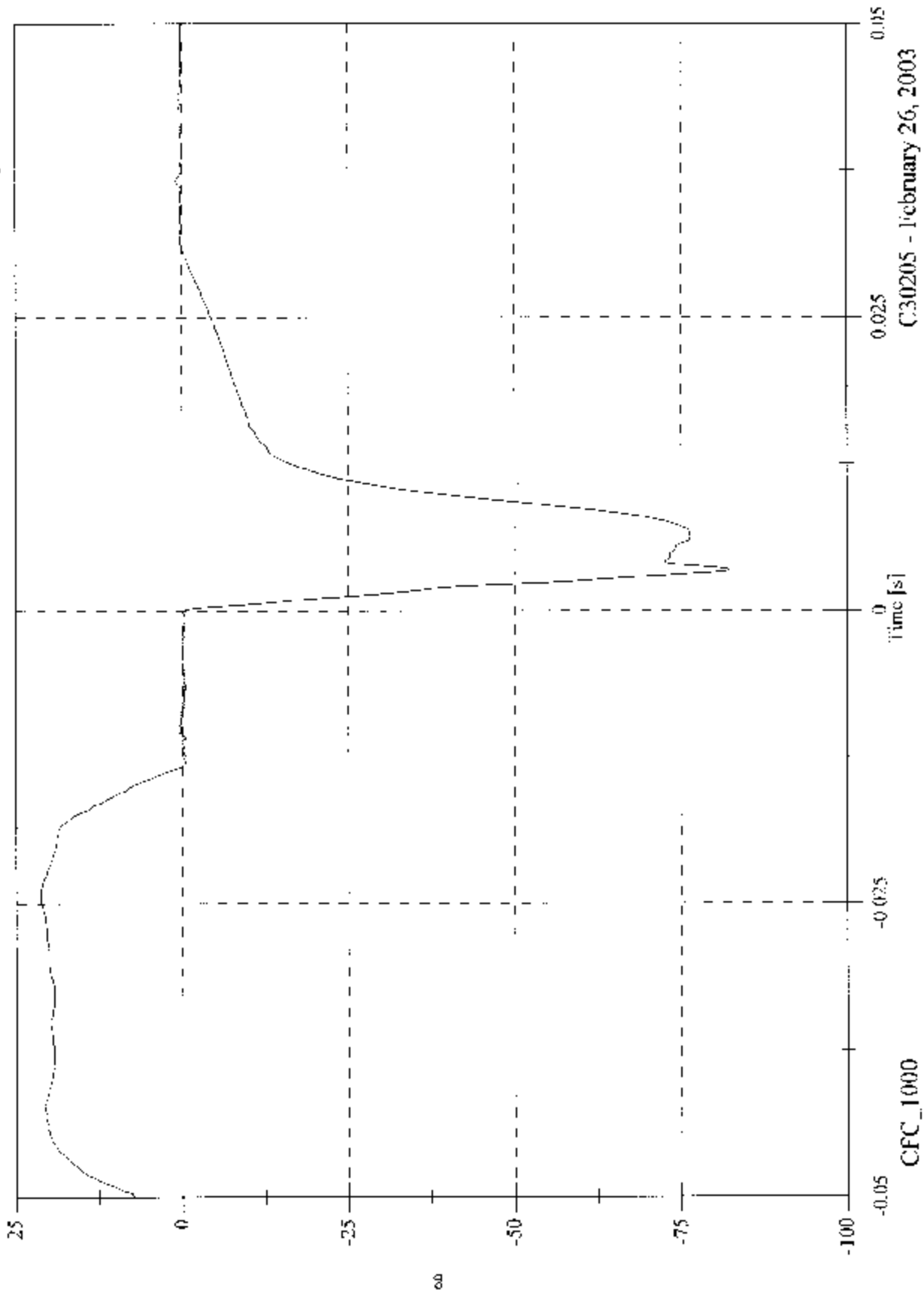


FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Headform X Acceleration

Max: 21.3 [g] at -0.025 [s]

Min: -82.2 [g] at 0.003 [s]

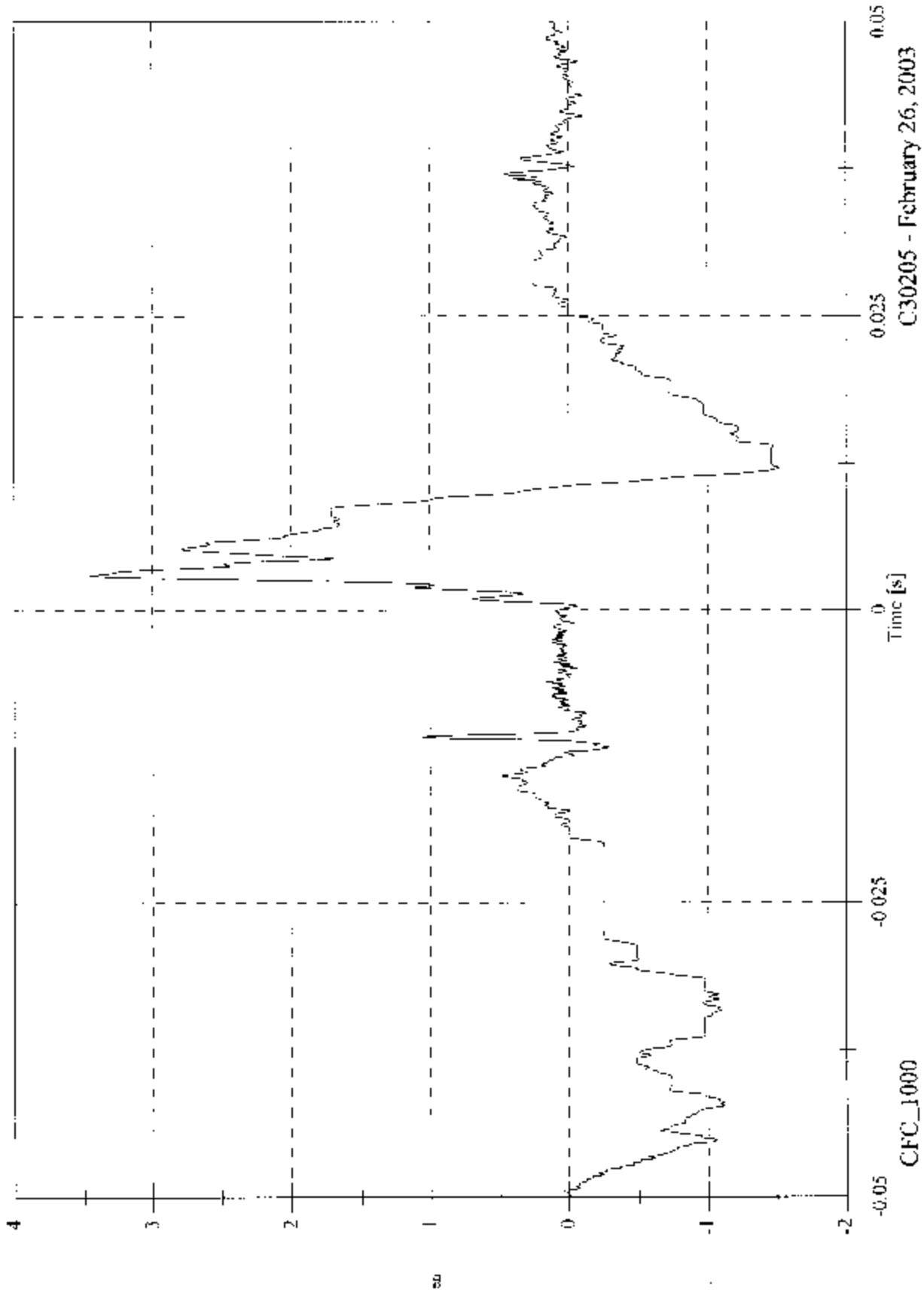


C30205 - February 26, 2003

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Headform Y Acceleration

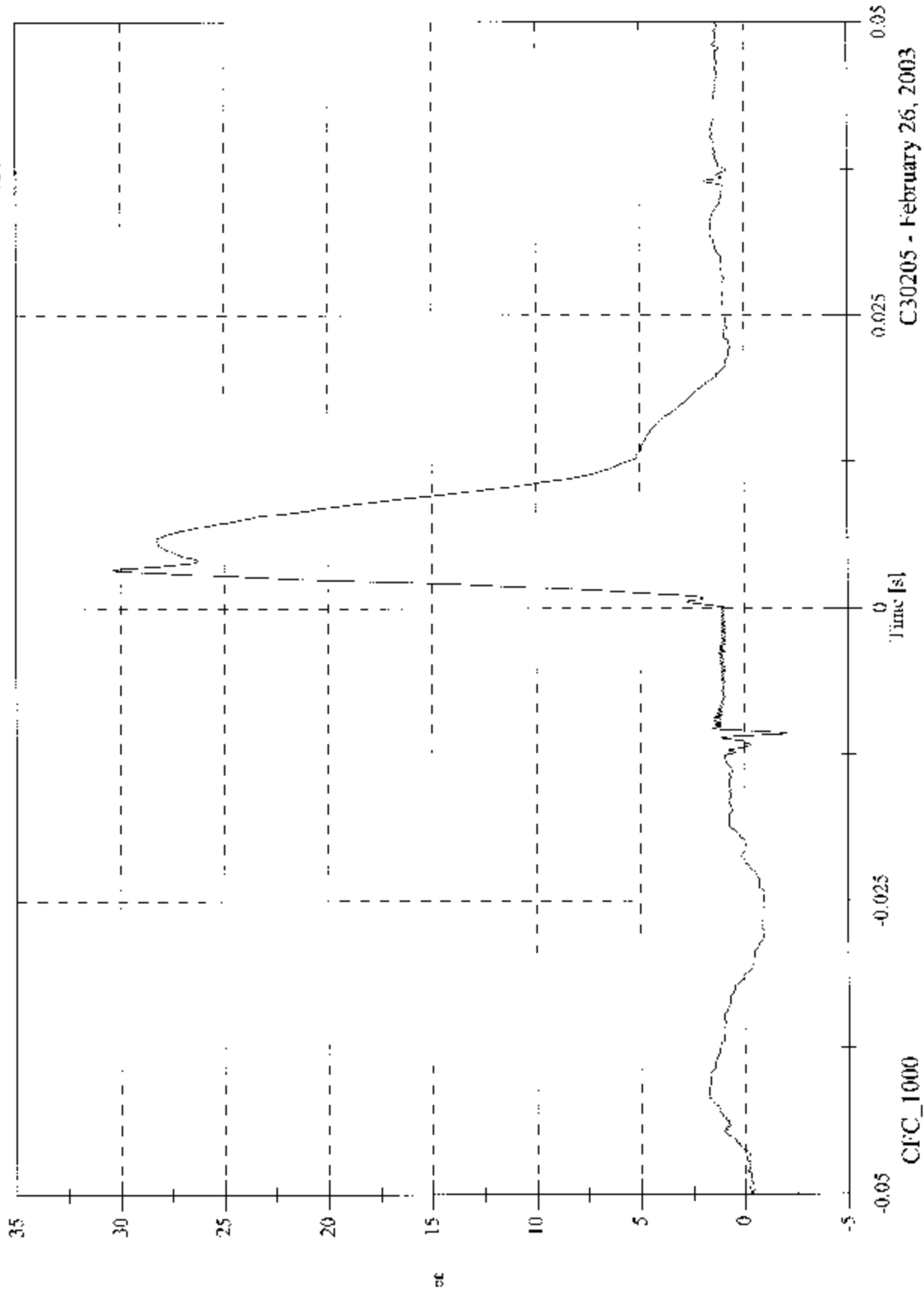
Max: 3.5 [g] at 0.003 [s]
Min: -1.5 [g] at 0.012 [s]



C30205 - February 26, 2003

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP
 Headform Z Acceleration

Max: 30.4 [g] at 0.003 [s]
 Min: -2.1 [g] at -0.011 [s]



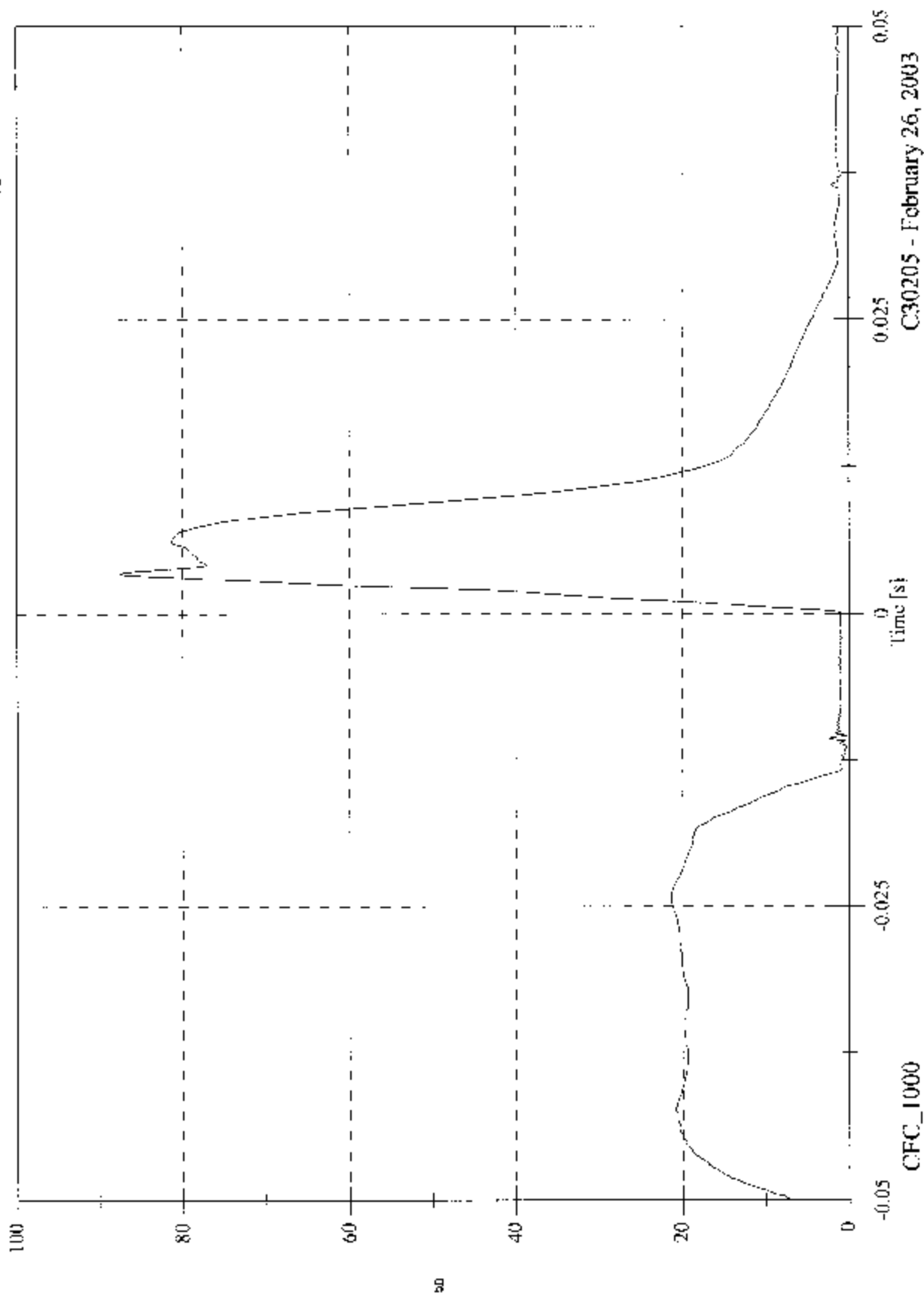
C30205 - February 26, 2003

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Max: 87.7 [g] at 0.003 [s]

Min: 0.3 [g] at -0.011 [s]

Headform Resultant



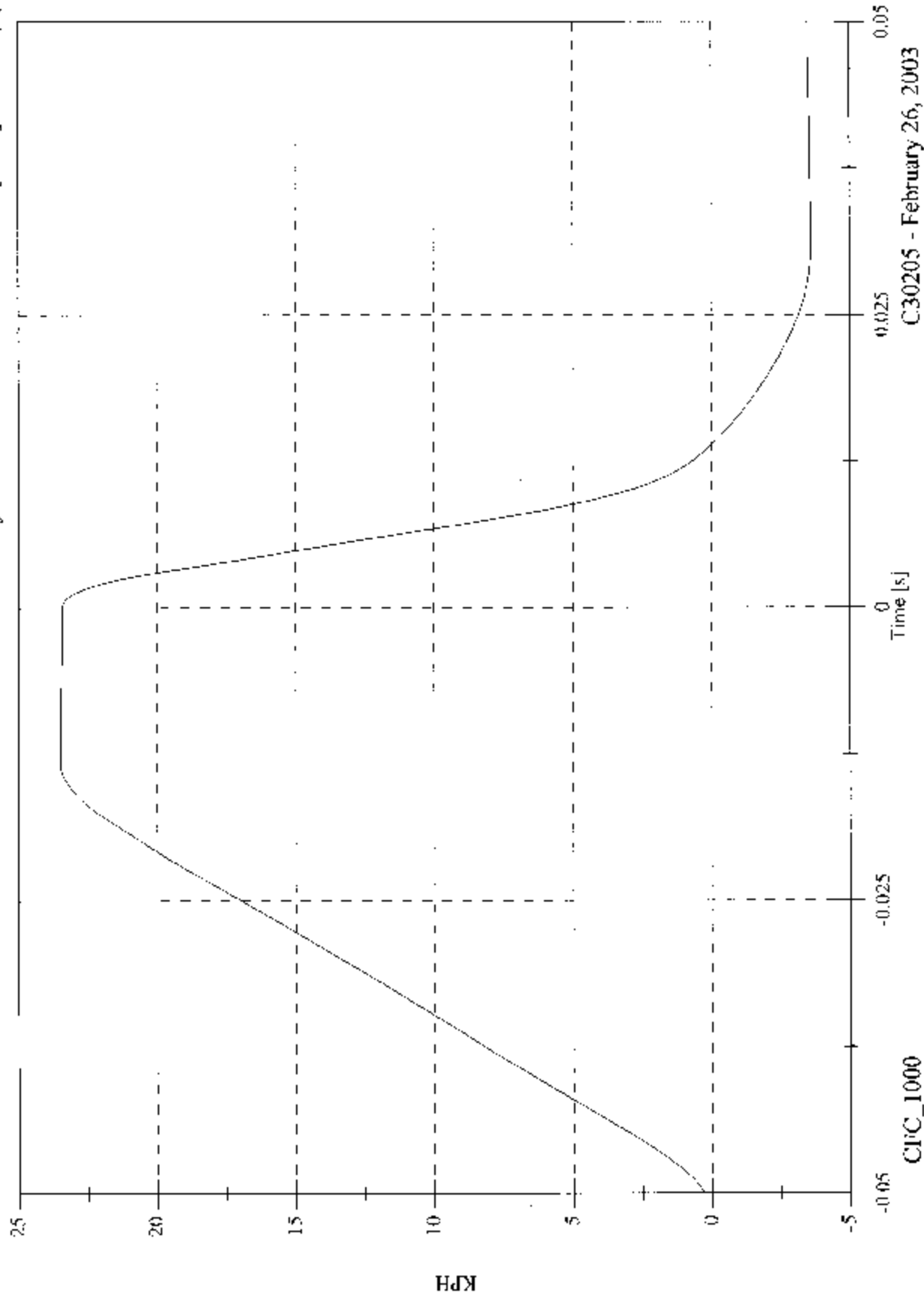
C30205 - February 26, 2003

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Max: 23.5 [KPH] at -0.013 [s]

Min: -3.6 [KPH] at 0.031 [s]

Headform Velocity



CIC_1000

Time [s]

C30205 - February 26, 2003

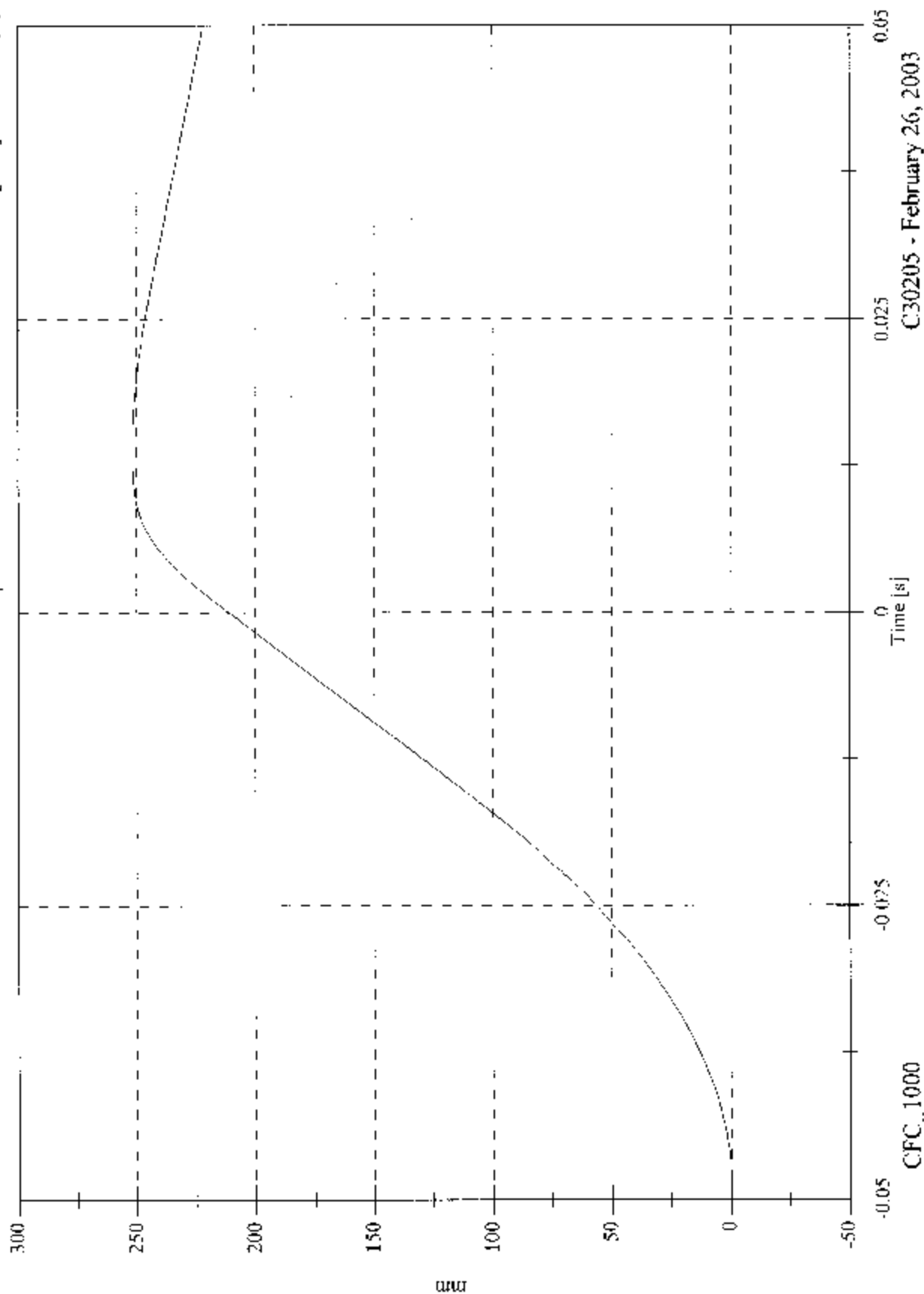
C30205 DRIVER SIDE AP2 IMPACT PLOT #5

FMVSS 201U IMPACT TEST - 2003 FORD RANGER 4-DOOR PICK-UP

Headform Displacement

Max: 251.9 [mm] at 0.014 [s]

Min: -0.4 [mm] at -0.050 [s]



C30205 - February 26, 2003

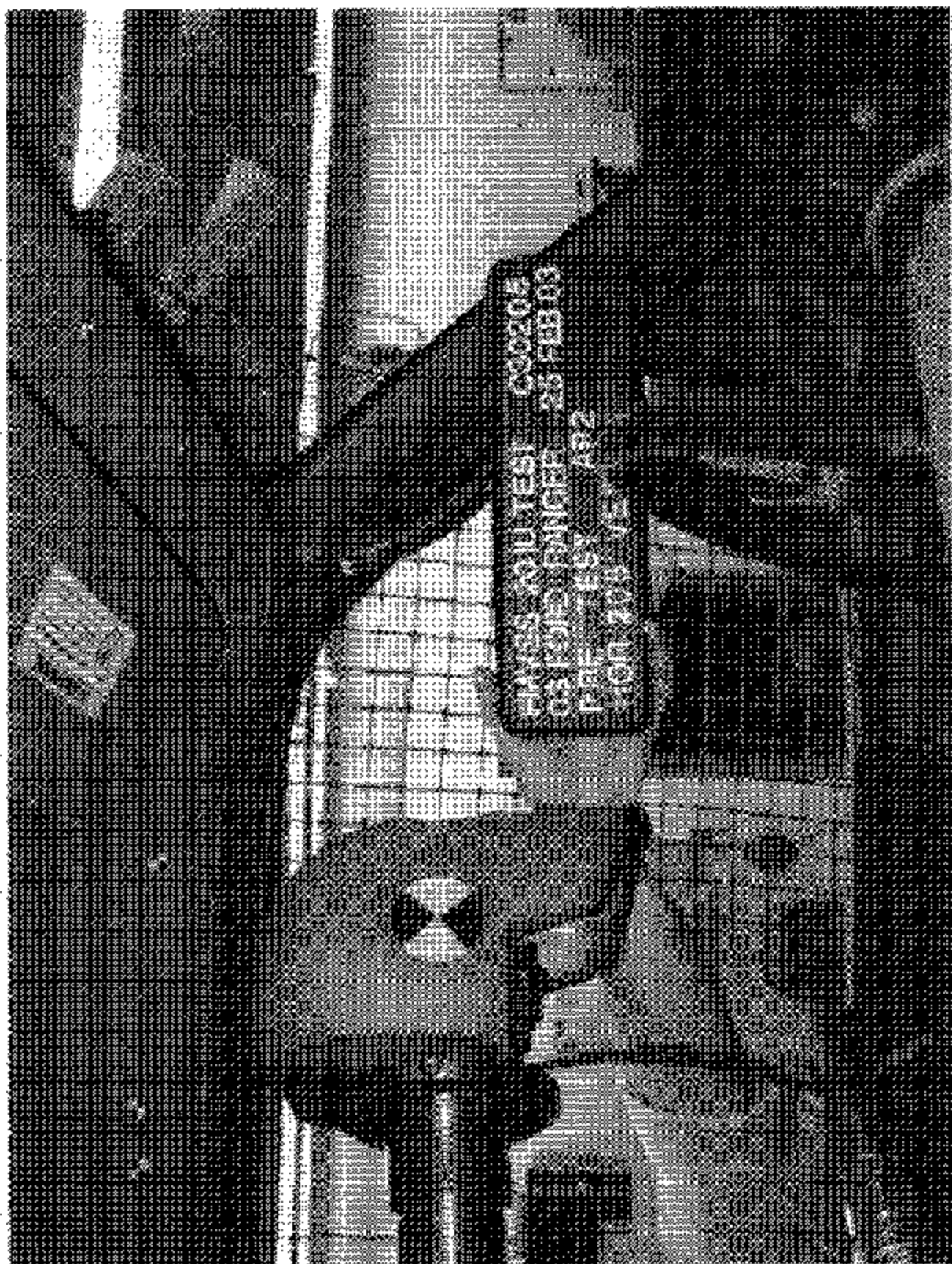


Figure : PREF TEST AP2

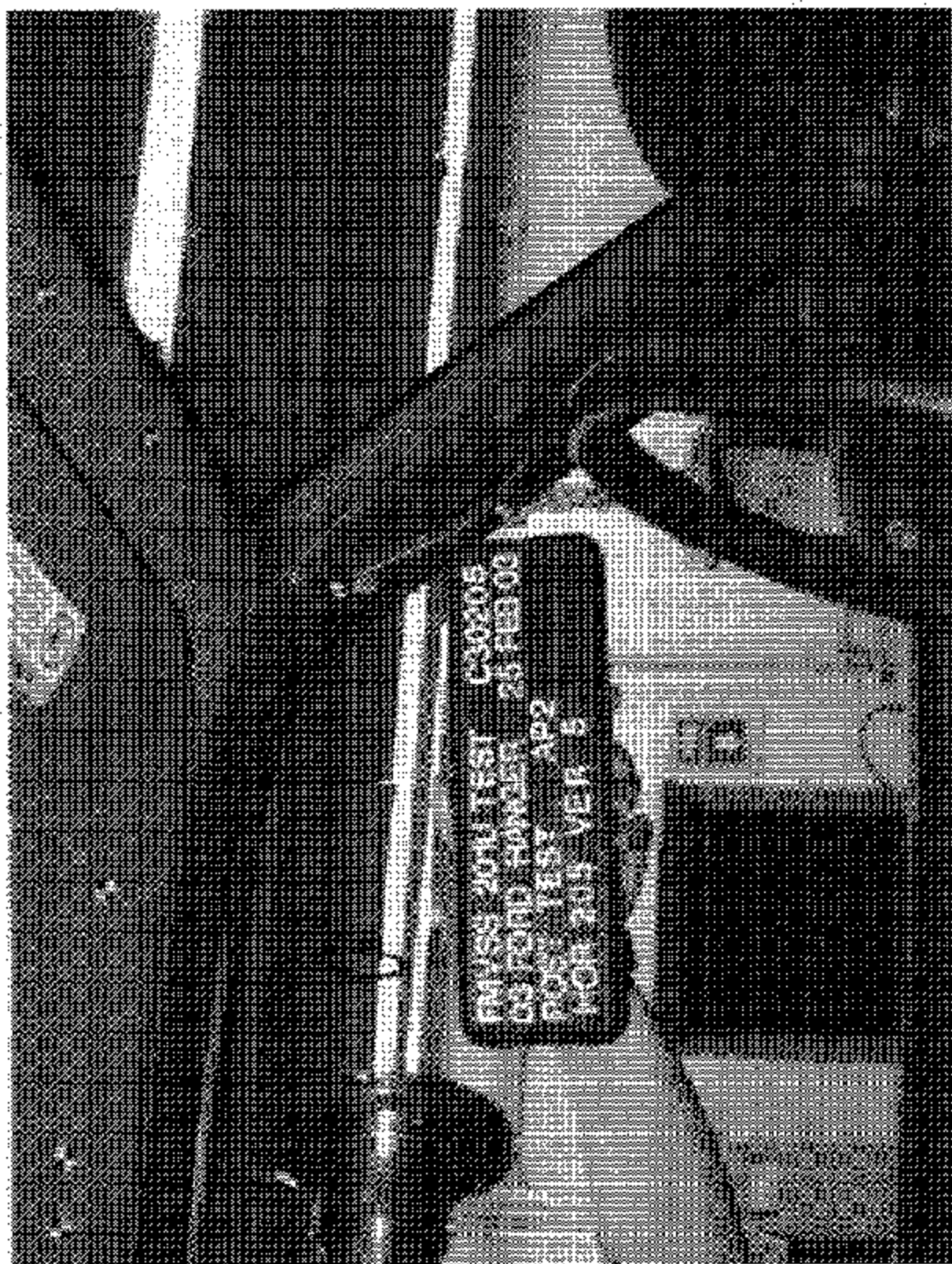


Figure : POST-TEST AP2

FMVSS 2010 TEST C30205
03 FORD RANGER 25 FEB 03
POST TEST AP2
HOR 205 VER 5

Figure : AP1 HEADFORM

APPENDIX A
PHOTOGRAPHS

PHOTOGRAPHS

FIGURE	VIEW
A-1	LEFT SIDE VIEW OF VEHICLE
A-2	RIGHT SIDE VIEW OF VEHICLE
A-3	3/4 FRONTAL VIEW FROM LEFT SIDE OF VEHICLE
A-4	3/4 REAR VIEW FROM RIGHT SIDE OF VEHICLE
A-5	VEHICLE'S CERTIFICATION LABEL
A-6	VEHICLE'S TIRE INFORMATION LABEL
A-7	PRE-TEST DRIVER SIDE A-PILLAR
A-8	PRE-TEST DRIVER SIDE FRONT HEADER
A-9	PRE-TEST DRIVER SIDE SIDE RAIL
A-10	PRE-TEST DRIVER SIDE DOOR FRAME B-PILLAR
A-11	PRE-TEST DRIVER SIDE REAR PILLAR
A-12	PRE-TEST PASSENGER SIDE A-PILLAR
A-13	PRE-TEST PASSENGER SIDE FRONT HEADER
A-14	PRE-TEST PASSENGER SIDE SIDE RAIL
A-15	PRE-TEST PASSENGER SIDE DOOR FRAME B-PILLAR
A-16	PRE-TEST PASSENGER SIDE REAR PILLAR
A-17	POST-TEST DRIVER SIDE A-PILLAR
A-18	POST-TEST DRIVER SIDE FRONT HEADER
A-19	POST-TEST DRIVER SIDE SIDE RAIL
A-20	POST-TEST DRIVER SIDE DOOR FRAME B-PILLAR
A-21	POST-TEST DRIVER SIDE REAR PILLAR
A-22	POST-TEST PASSENGER SIDE A-PILLAR
A-23	POST-TEST PASSENGER SIDE FRONT HEADER
A-24	POST-TEST PASSENGER SIDE SIDE RAIL
A-25	POST-TEST PASSENGER SIDE DOOR FRAME B-PILLAR
A-26	POST-TEST PASSENGER SIDE REAR PILLAR

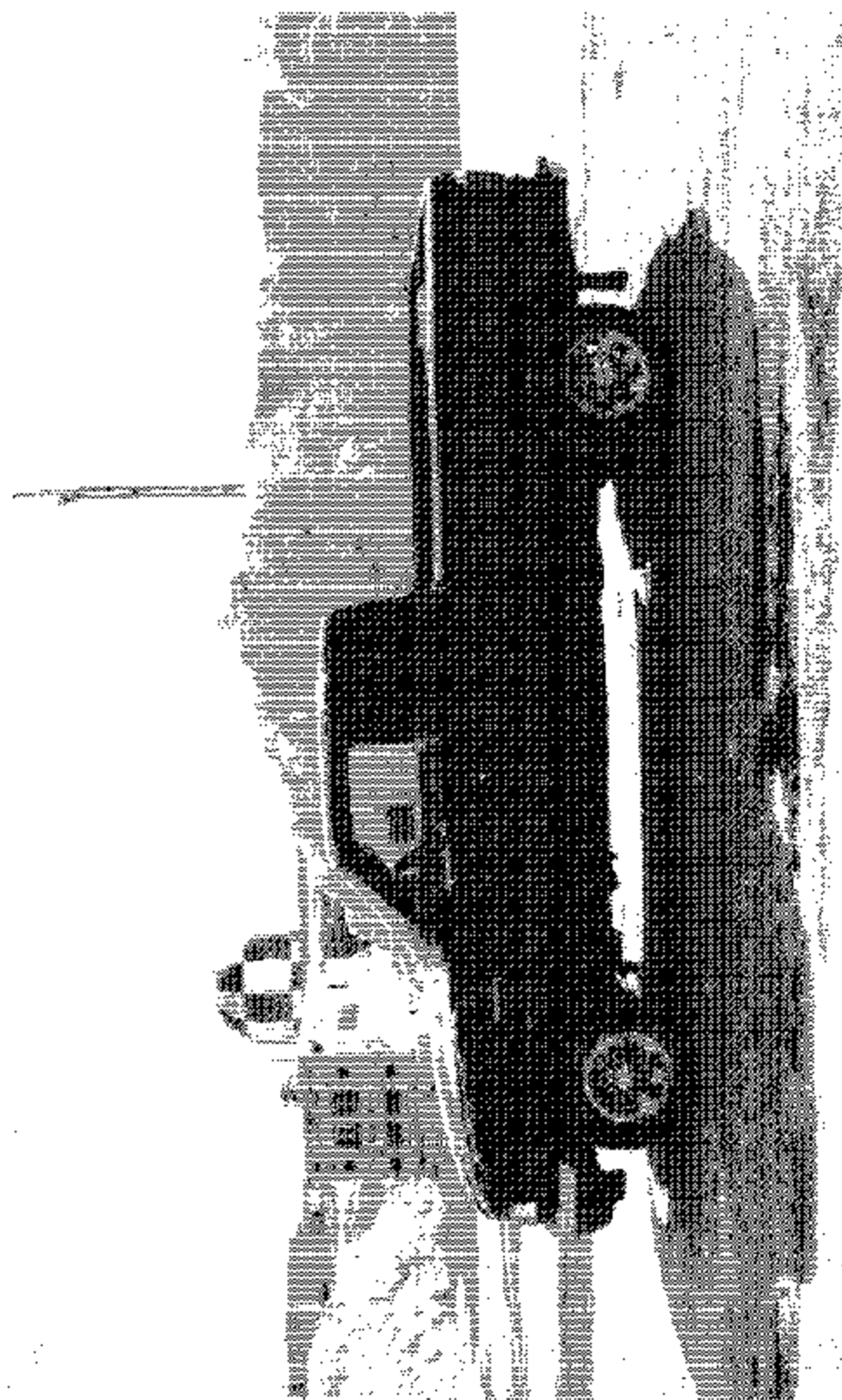


Figure A-1: LEFT SIDE VIEW OF VEHICLE

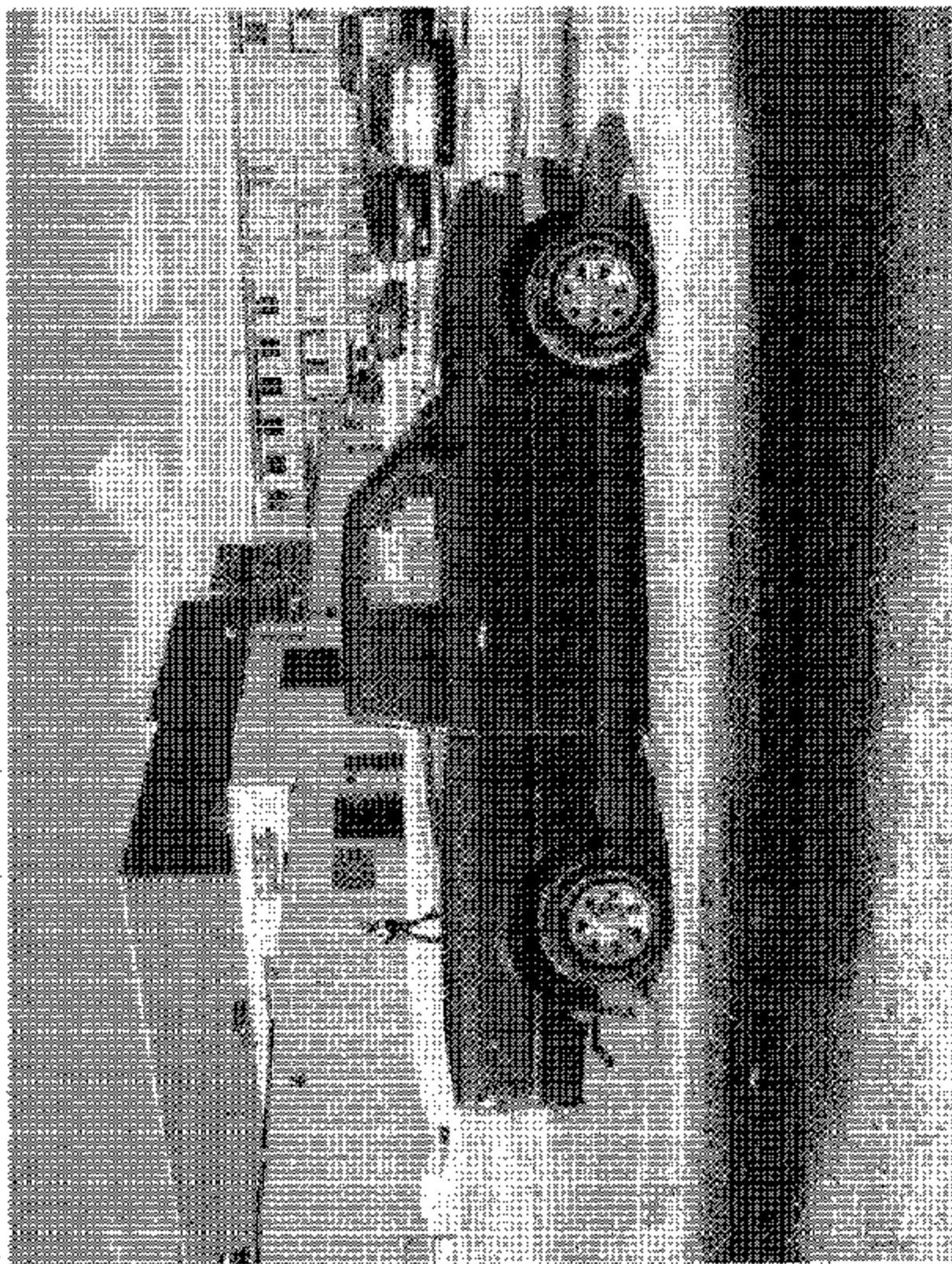


Figure A-2: RIGHT SIDE VIEW OF VEHICLE

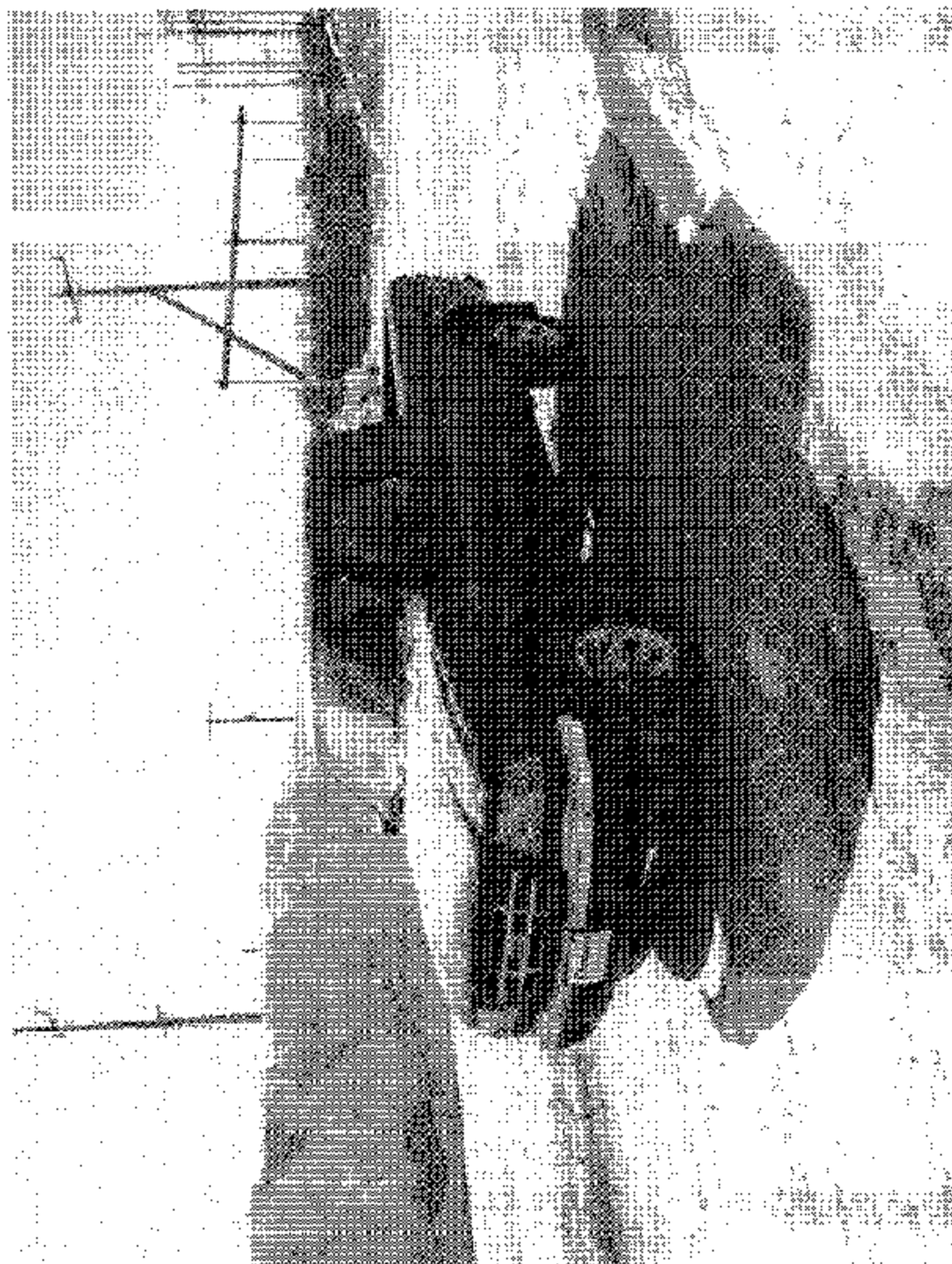


Figure A-5: 3-4 Frontal View from Left Side of Vehicle

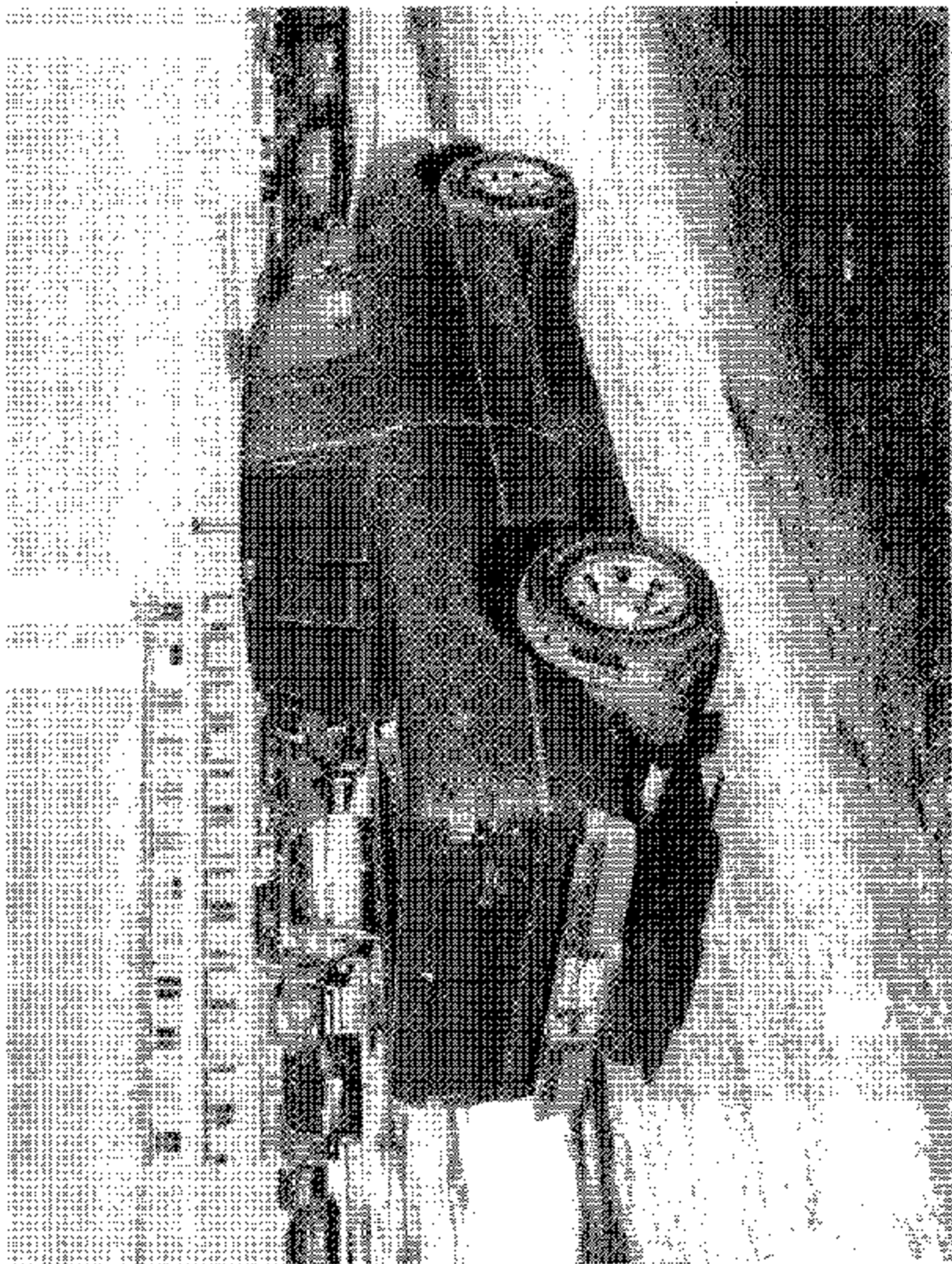


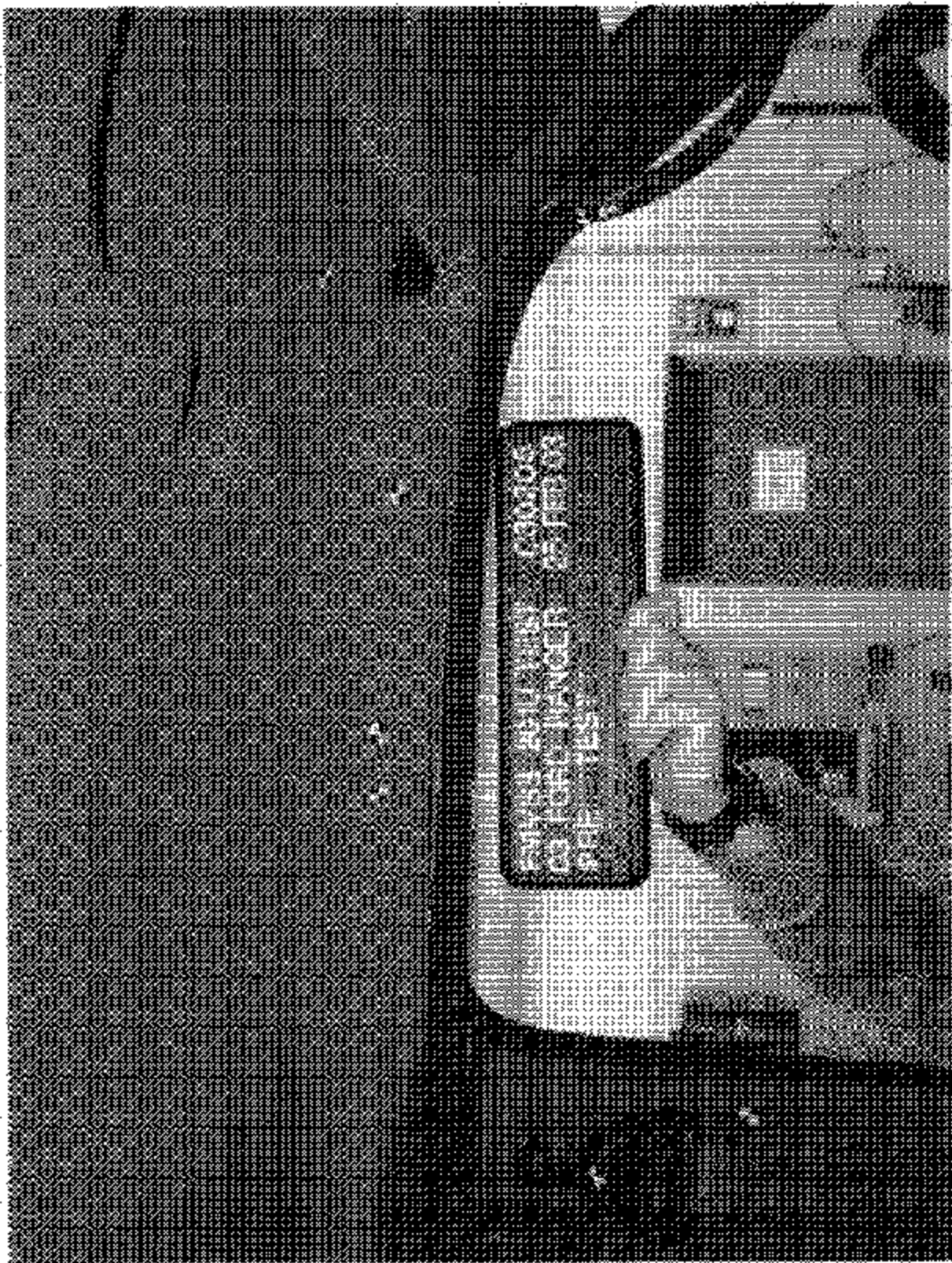
Figure A-4: 3/4 REAR VIEW FROM RIGHT SIDE OF VEHICLE



Figure A-7: PRE-TEST DRIVER SIDE A-PILLAR



Figure A-4. PRE-TEST DRIVER SIDE FRONT HEADER.



Page A-6: PREPARED: 6/2/2004

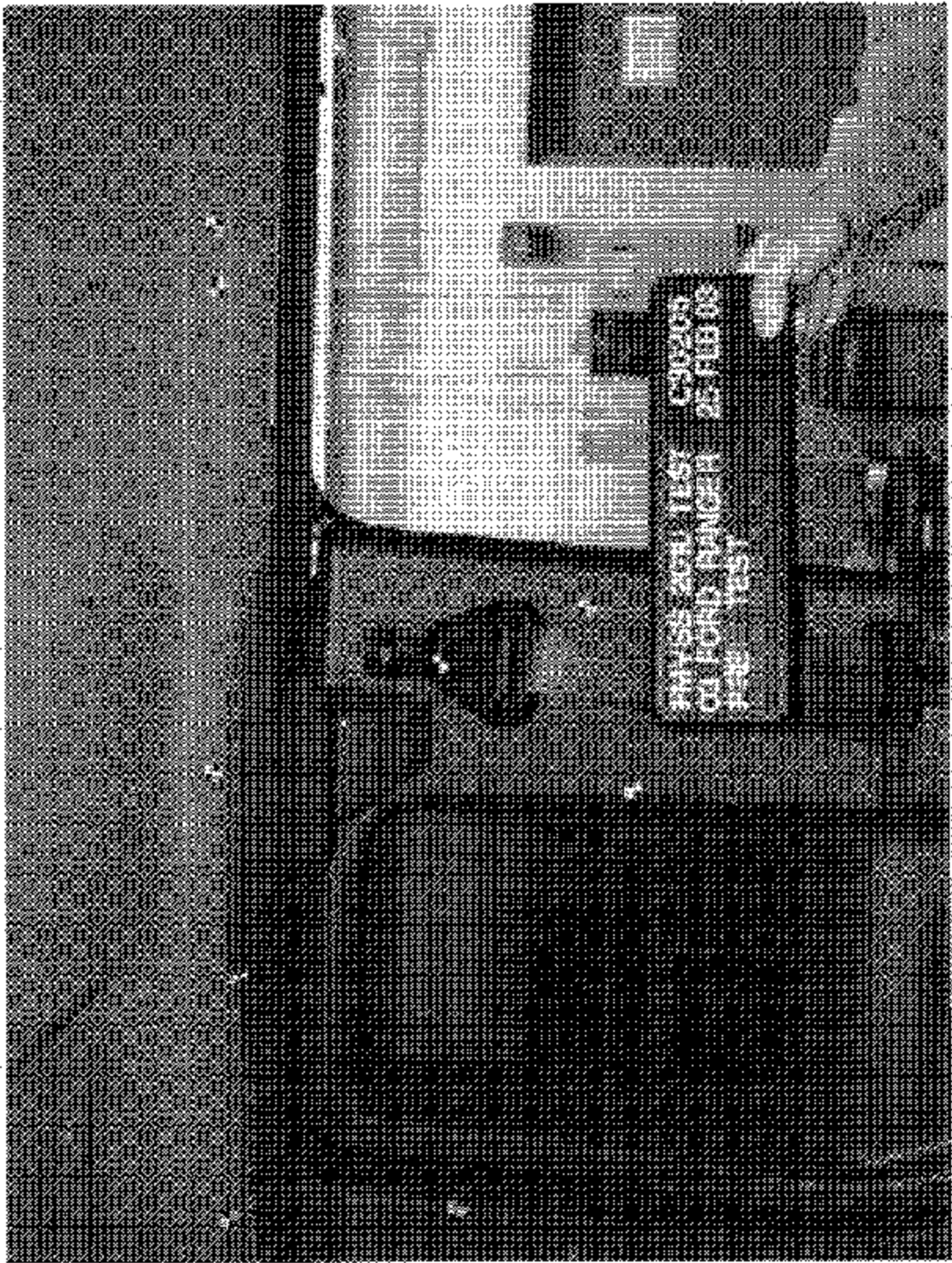


Figure A-10: PRE-TEST DRIVER SIDE DOOR FRAME

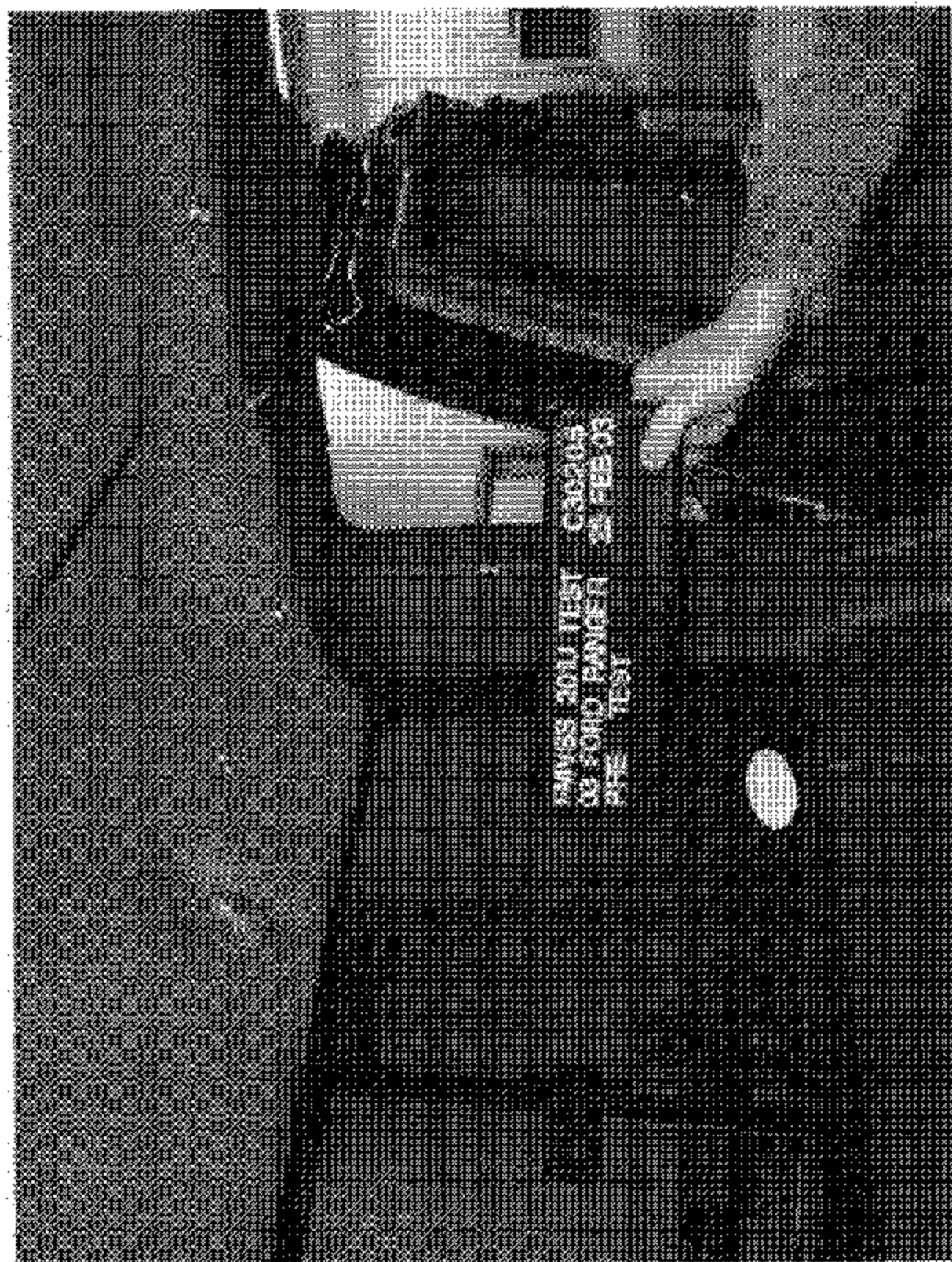


Figure A-11: PRE-TEST DRIVER SIDE REAR PILLAR

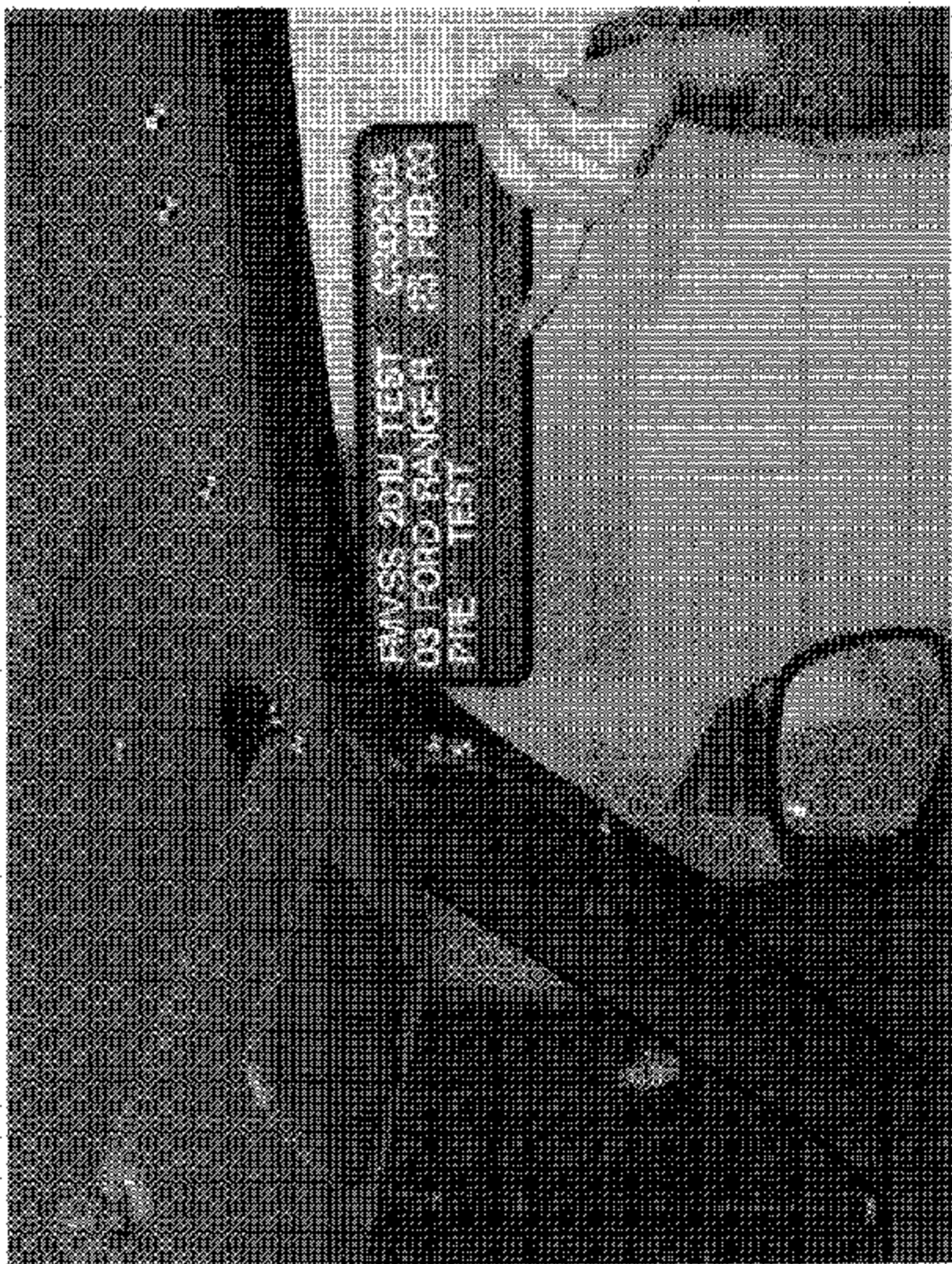


Figure A-12: PRE-TEST PASSENGER SIDE A-PILLAR

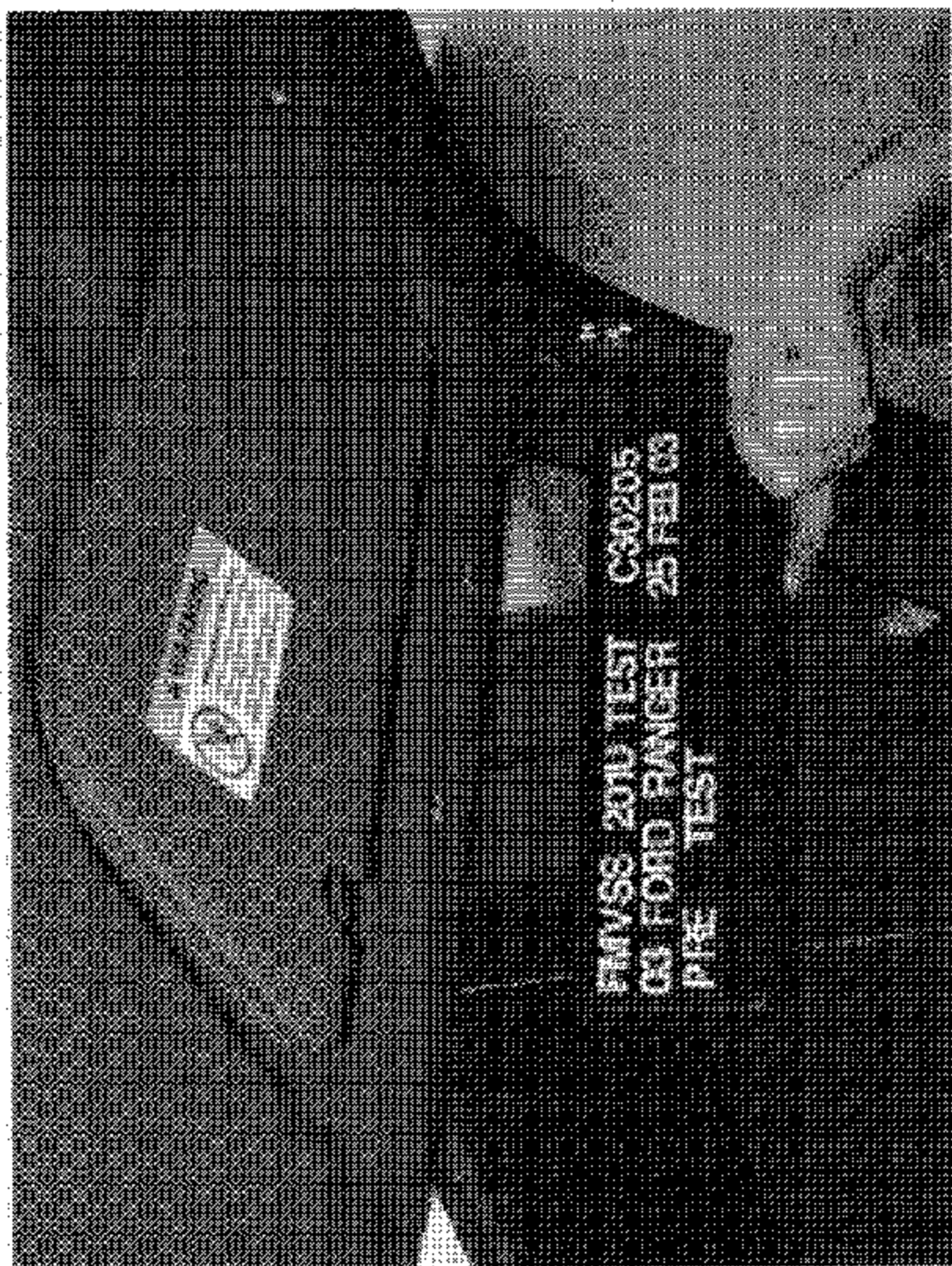


Figure A-13: PRE-TEST PASSENGER SIDE FRONT HEADER

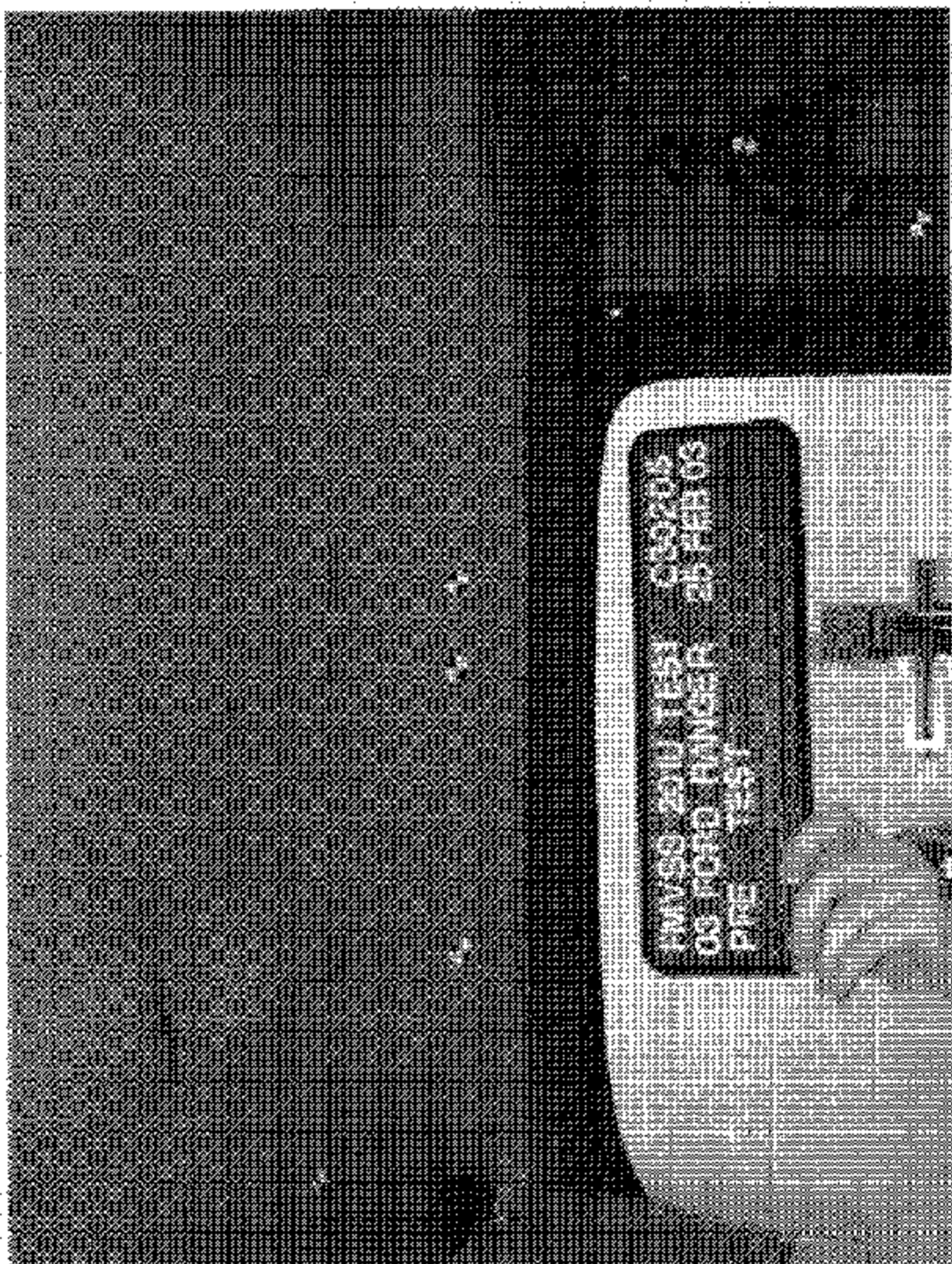


Figure A-14: PRE-TEST PASSENGER SIDE SIDE RAIL

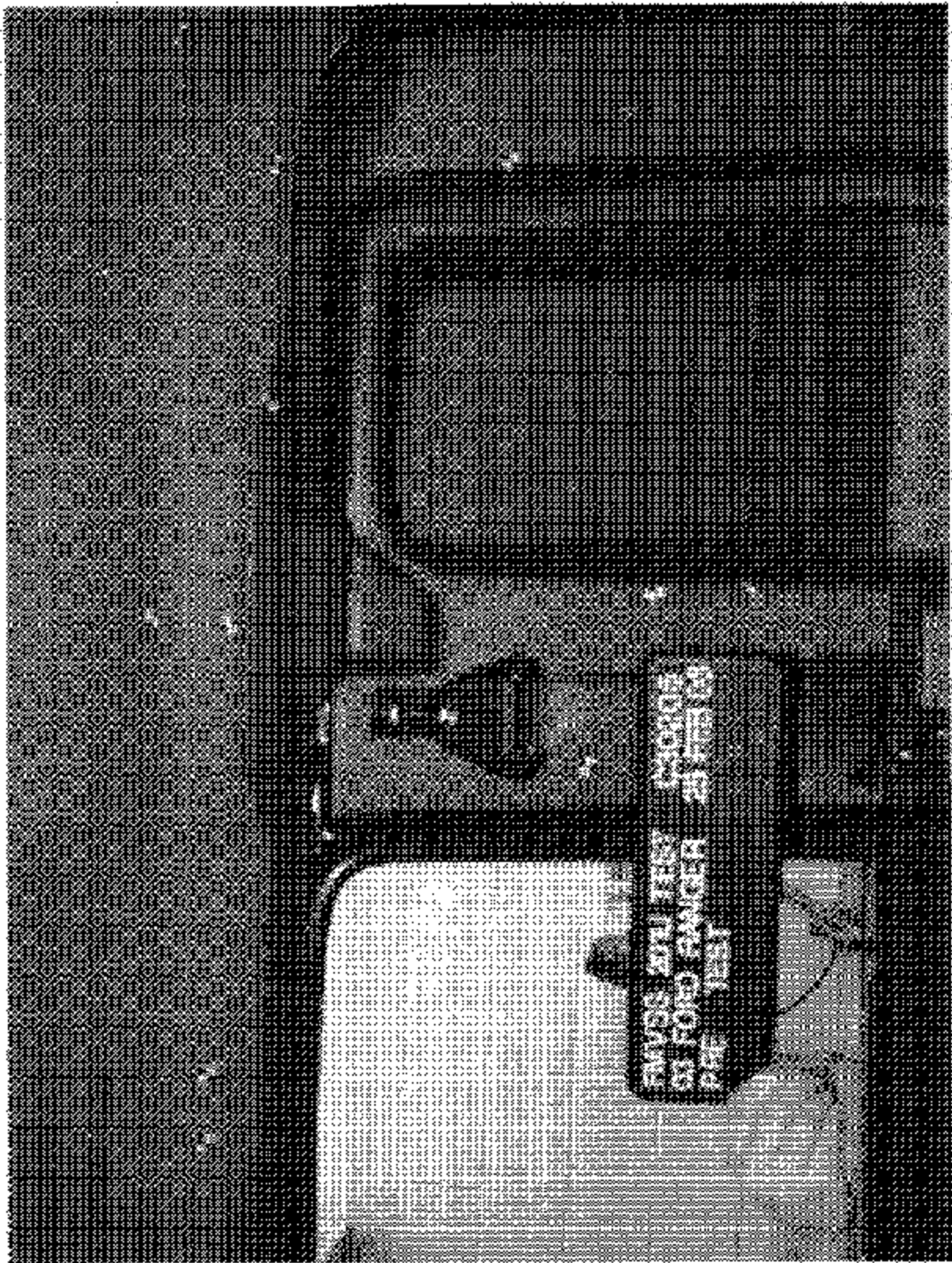


Figure A-15: PRE-TEST PASSENGER SIDE DOOR FRAME

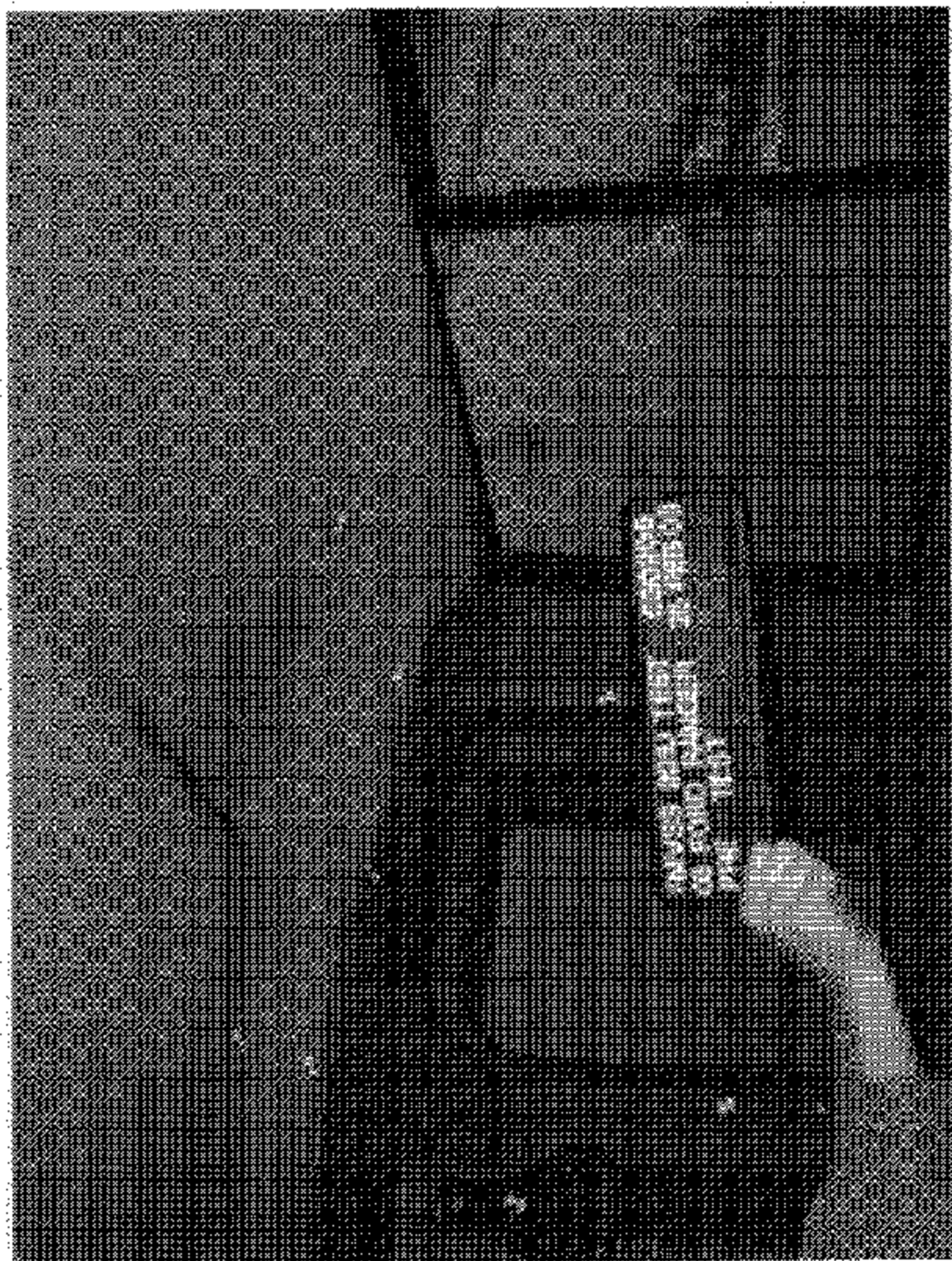


Figure A-16: PRE-TEST PASSENGER SIDE REAR PILLAR

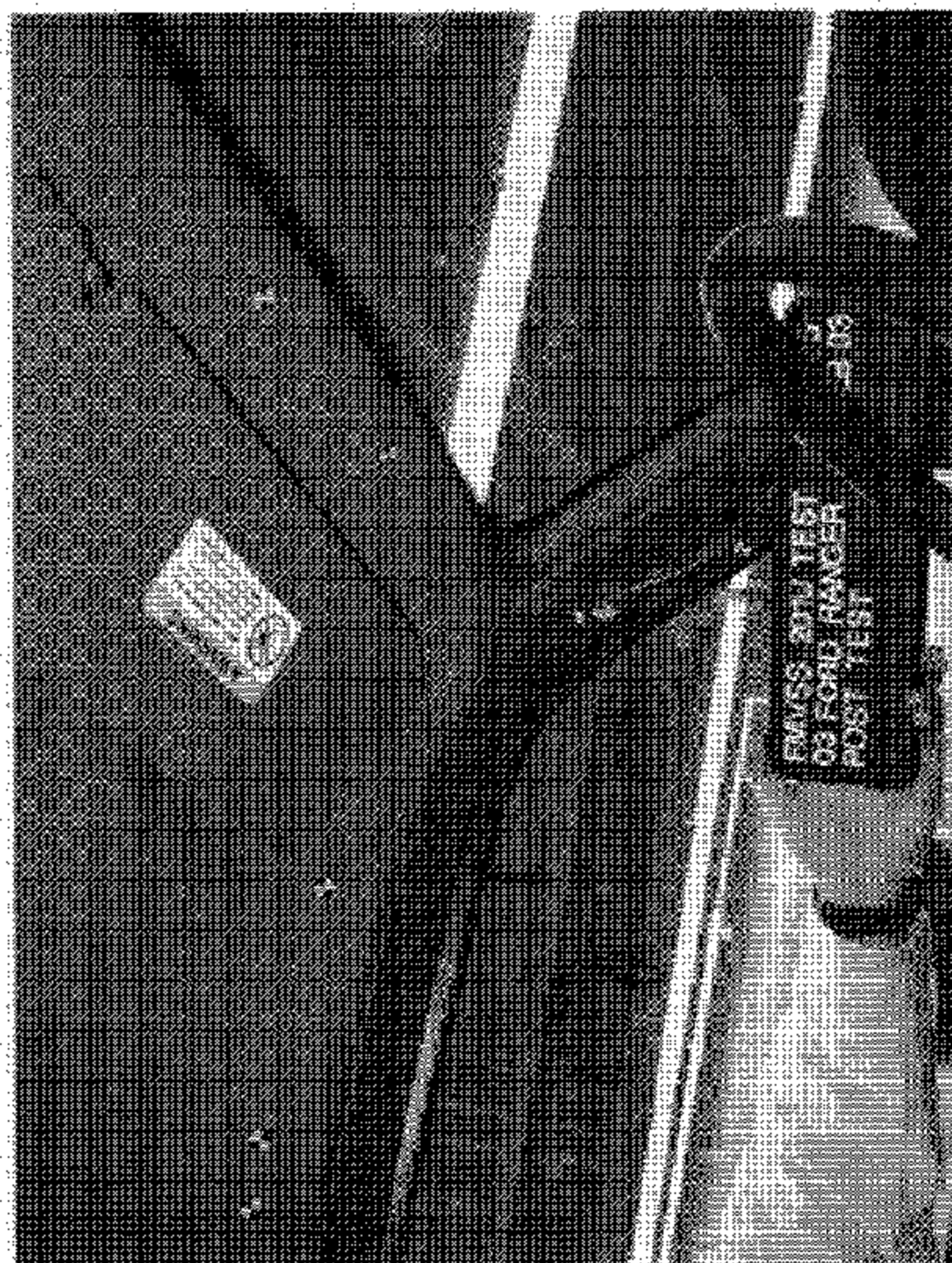


Figure A-17: POST-TEST DRIVER SIDE A-FULLAR



Figure A-18: POST-TEST DRIVER SIDE FRONT HEADER

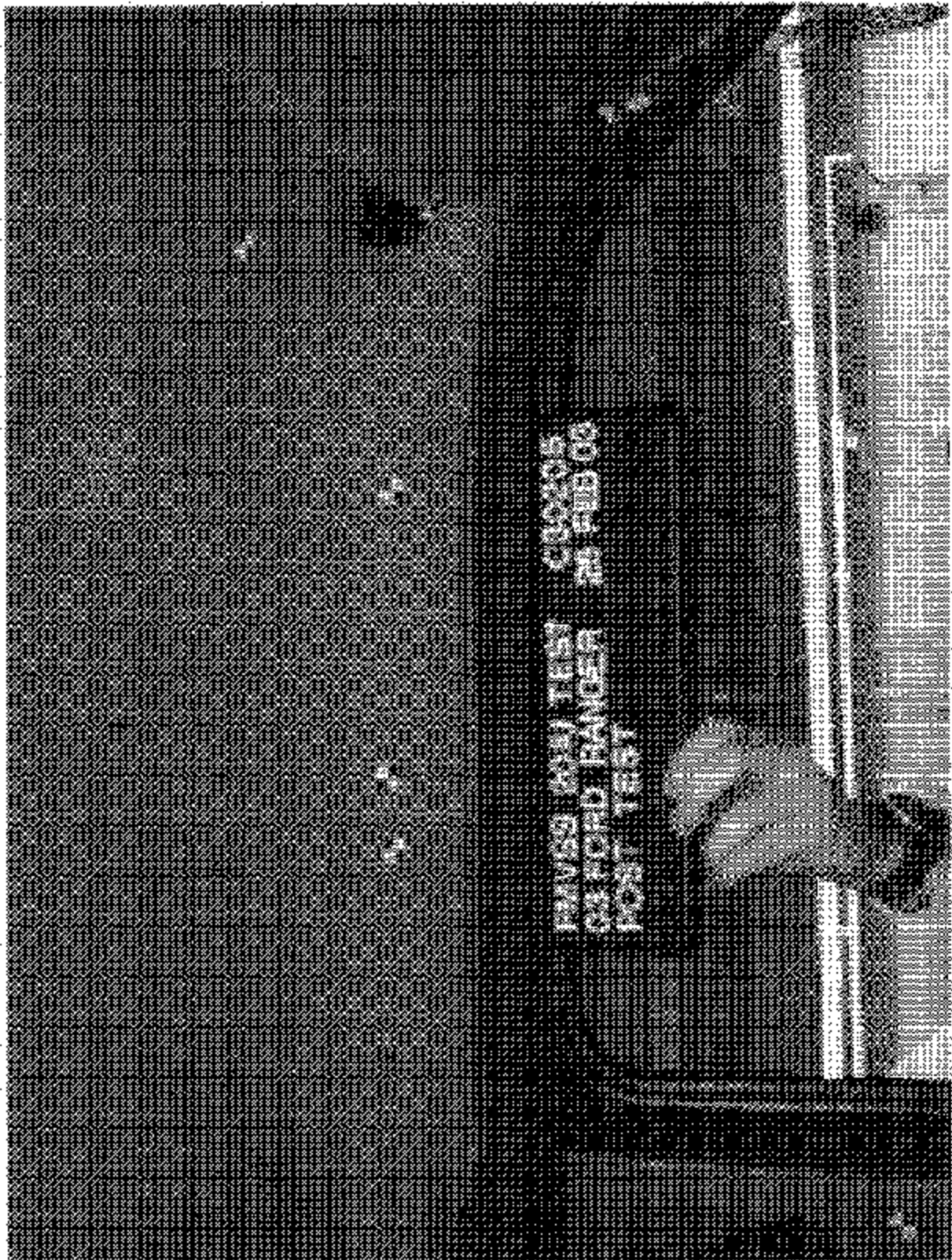


Figure A-9: POST-TEST DRIVER SIDE SIDE RAIL



Figure A-20: POST-TEST DRIVER SIDE DOOR FRAME

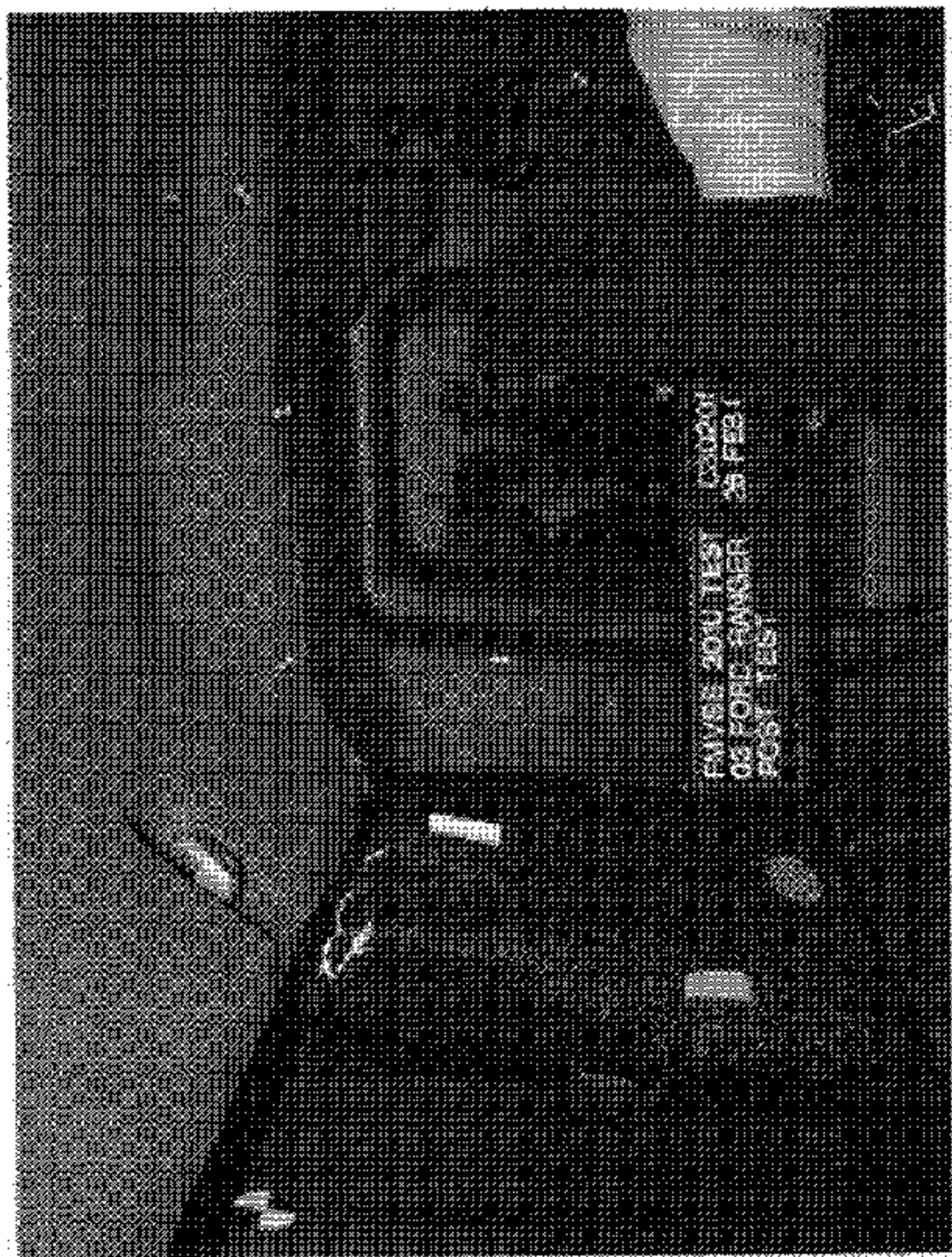


Figure A-21 : POST-TEST DRIVER SIDE REAR PILLAR



Figure A-22 : POST-TEST PASSENGER SIDE A-PILLAR



Figure A-20 : POST-TEST PASSENGER SIDE FRONT HEADER



Figure A.24: POST-TEST PASSENGER SIDE SIDE RAIL

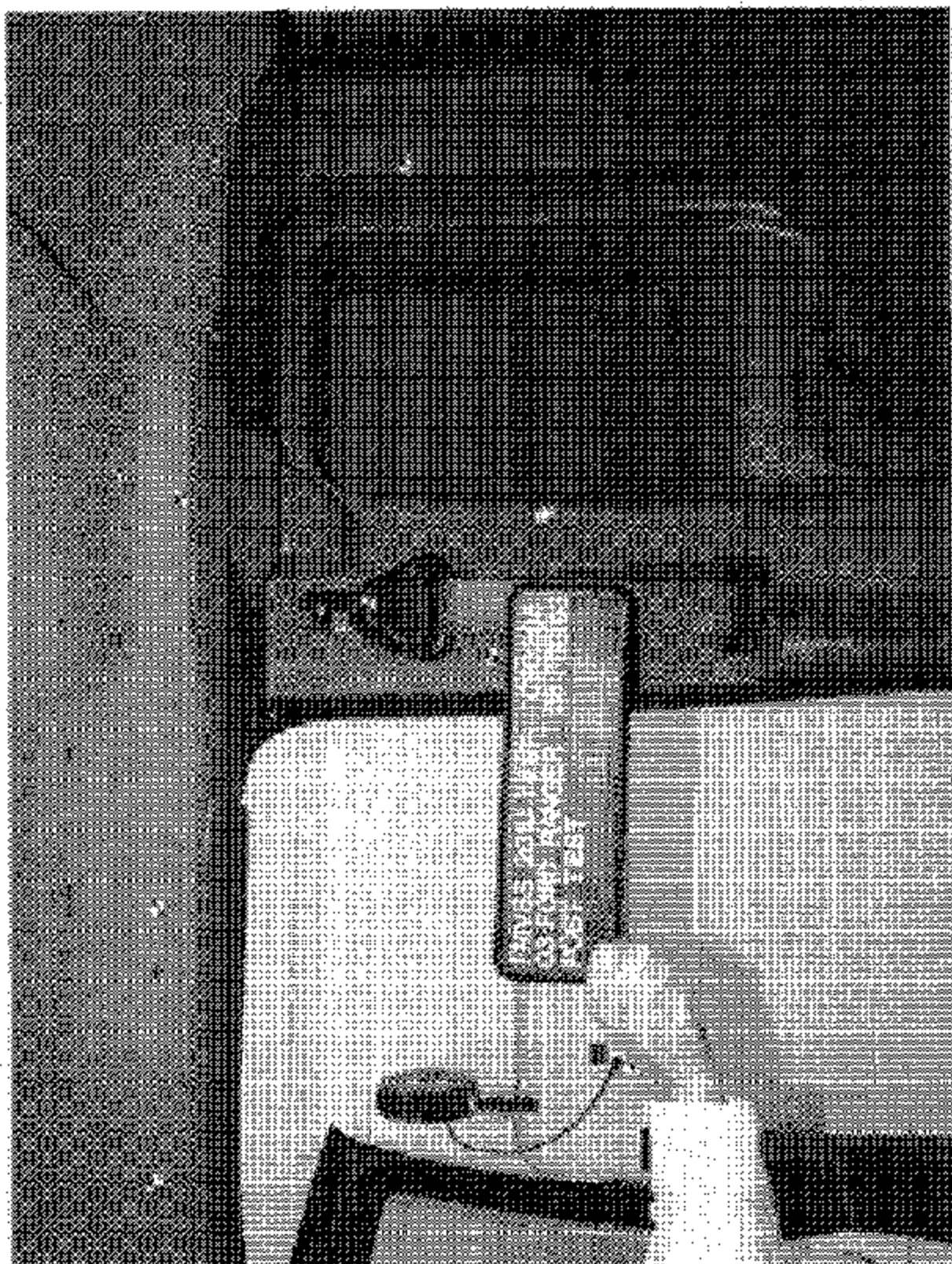


Figure A-25 : POST-TEST PASSENGER SIDE DOOR FRAME

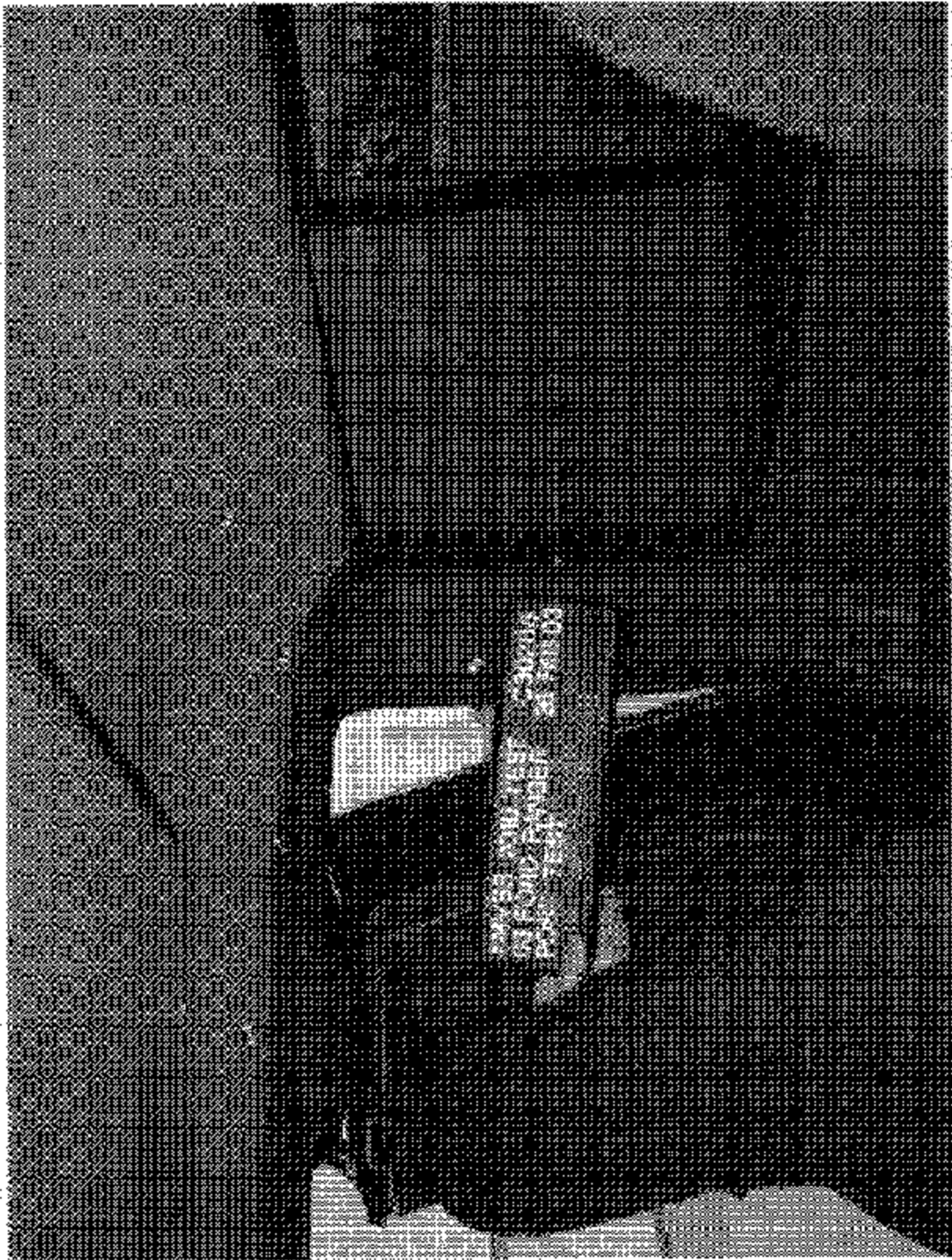


Figure A-26: POST-TEST PASSENGER SIDE REAR PILLAR

APPENDIX B

PART 572L PERFORMANCE CALIBRATION IN SUPPORT OF VEHICLE SAFETY COMPLIANCE TESTING FOR OCCUPANT PROTECTION IN INTERIOR IMPACT

Appendix B contains the results from certification tests performed on the Free Motion Headforms utilized in this test program. The results indicate that the headforms meet all of the performance specifications given in 49 CFR Part 572 Subpart L.

The tests were conducted at the Dummy Certification Test Facility of Veridian Engineering. A summary of the test results are included in this Appendix.

**PART 572L
HEAD DROP PRE-TEST**

MANUFACTURER:	APPLIED SAFETY TECHNOLOGIES CORPORATION	
SERIAL NUMBER:	0062	
CALIBRATION DATE:	February 13, 2003	
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19°C to 26°C	22
RELATIVE HUMIDITY	10% to 70%	12
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	232.5
PEAK LATERAL ACCELERATION	15 Gs Maximum	1.4
IS ACCELERATION CURVE UNIMODAL?	YES	YES

HEAD ACCELEROMETER CALIBRATION INFORMATION

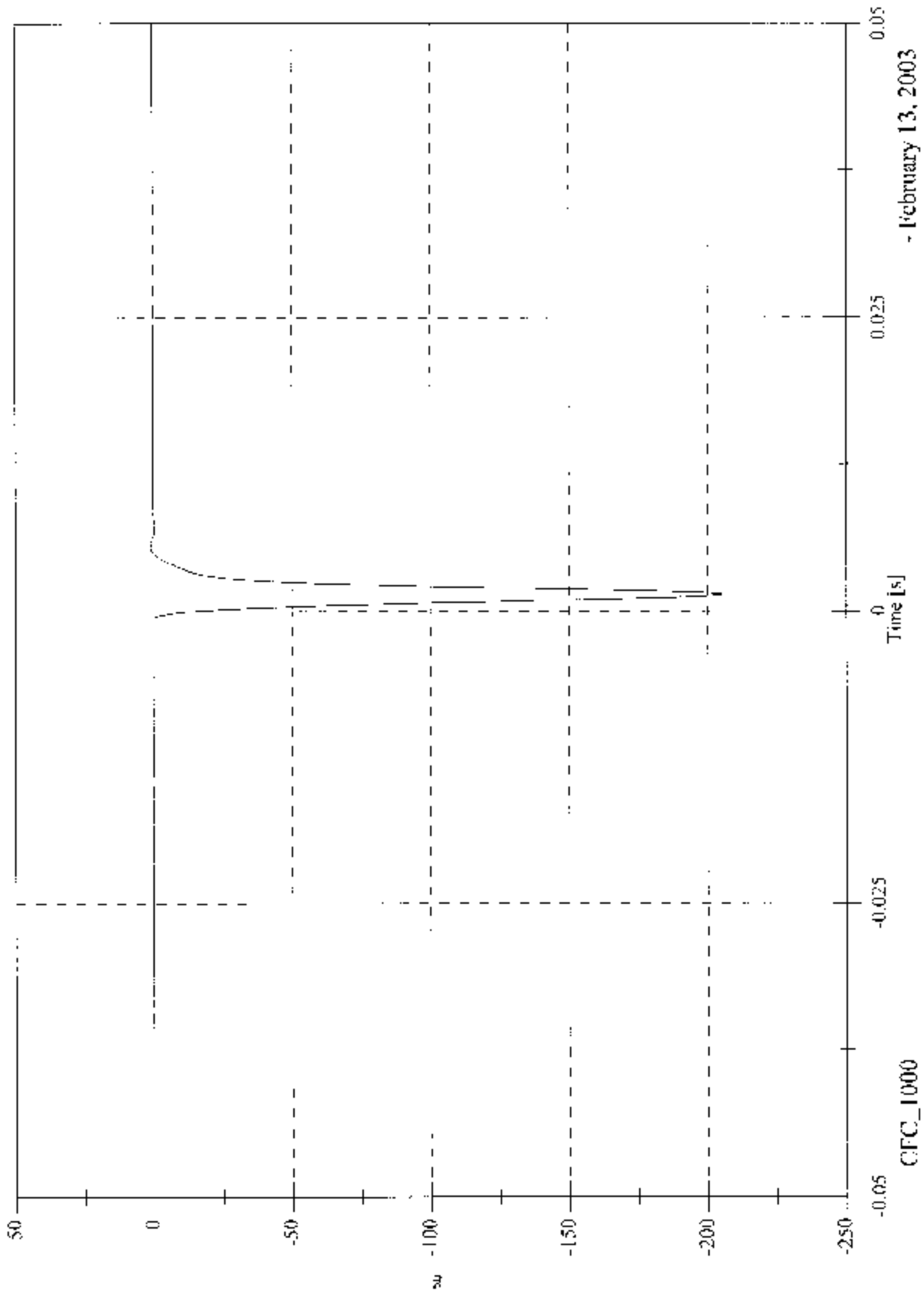
I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J33177	SEPT. 02	MARCH 03
2 - LATERAL	ENDEVCO	7264-2000T	J33019	SEPT. 02	MARCH 03
3 - VERTICAL	ENDEVCO	7264-2000T	J32782	SEPT. 02	MARCH 03

REMARKS:

FMVSS 201U - 1 Head Form Calibration Drops

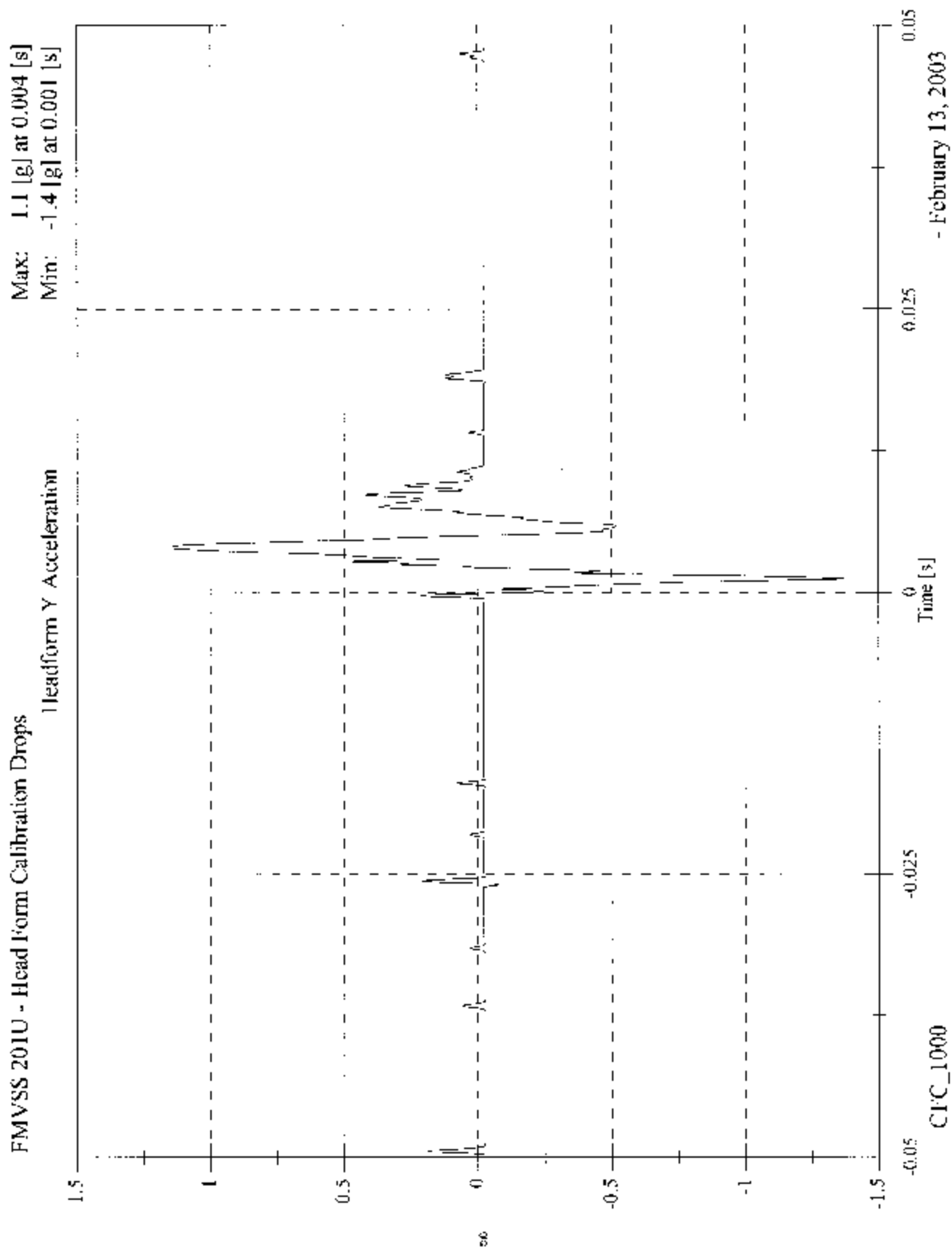
Max: 1.0 [g] at 0.005 [s]
Min: -205.0 [g] at 0.001 [s]

Headform X Acceleration



February 13, 2003

C30205 PRE-TEST HEADFROM 0062 IMPACT PLOT #2



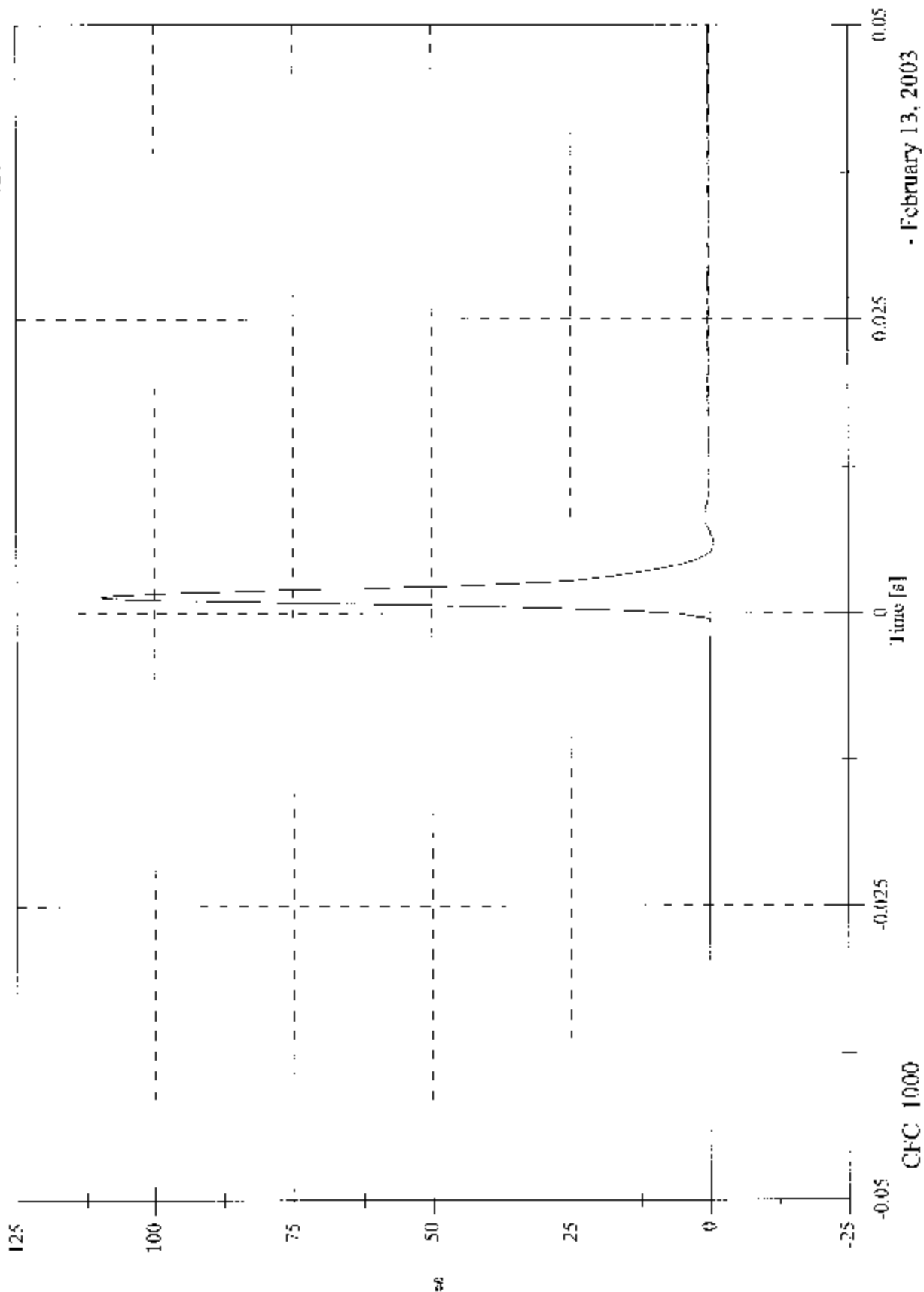
- February 13, 2003

FMVSS 201U - Head Form Calibration Drops

Headform Z Acceleration

Max: 109.7 [g] at 0.001 [s]

Min: -0.8 [g] at 0.006 [s]

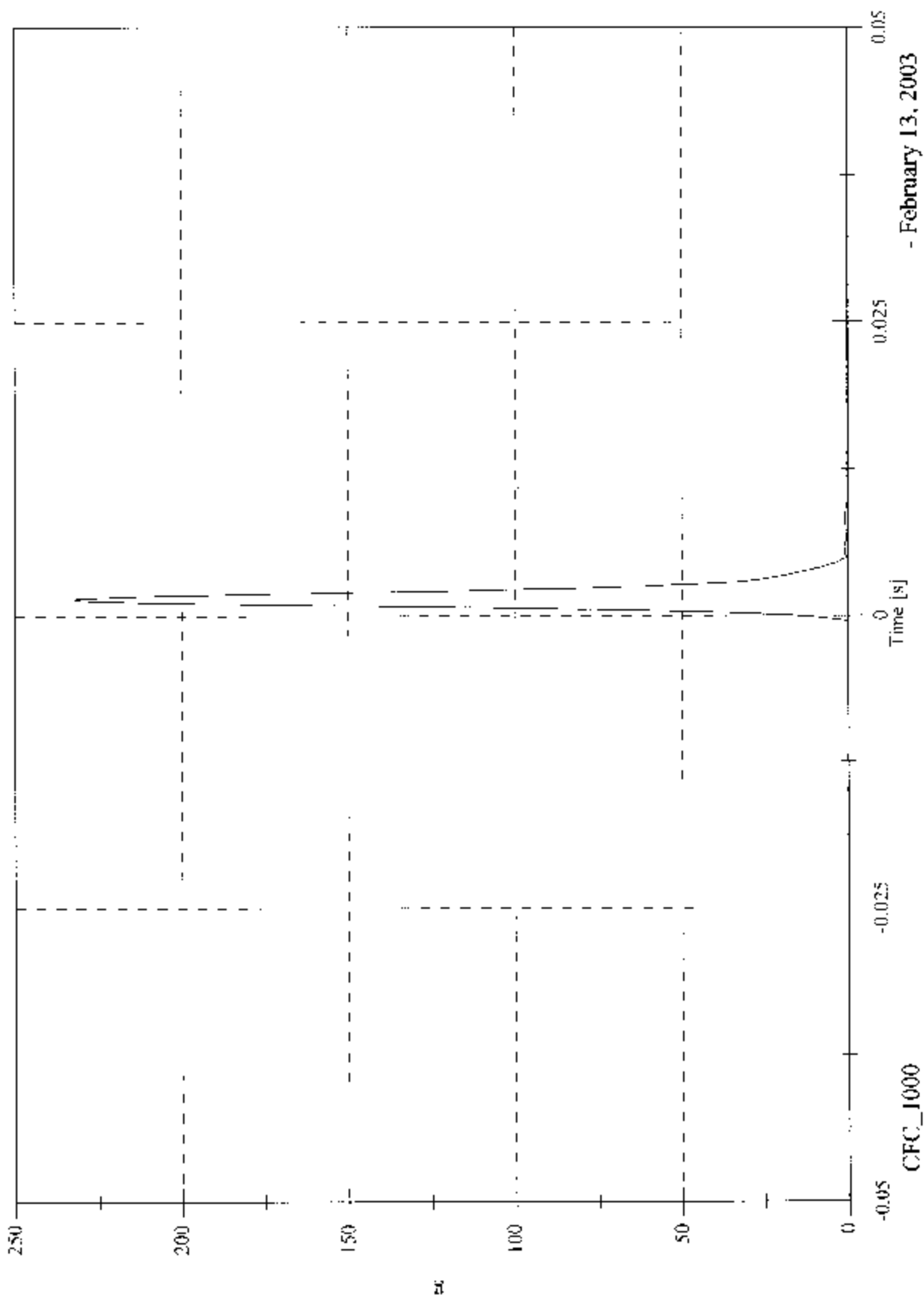


- February 13, 2003

Max: 232.5 [g] at 0.001 [s]
Min: 0.0 [g] at -0.037 [s]

Headform Resultant

FMVSS 201U - Head Form Calibration Drops



- February 13, 2003

PART 572L
HEAD DROP PRE-TEST

MANUFACTURER:	APPLIED SAFETY TECHNOLOGIES CORPORATION	
SERIAL NUMBER:	0355	
CALIBRATION DATE:	February 13, 2003	
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19°C to 26°C	22
RELATIVE HUMIDITY	10% to 70%	12
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	251.5
PEAK LATERAL ACCELERATION	15 Gs Maximum	4.6
IS ACCELERATION CURVE UNIMODAL?	YES	YES

HEAD ACCELEROMETER CALIBRATION INFORMATION

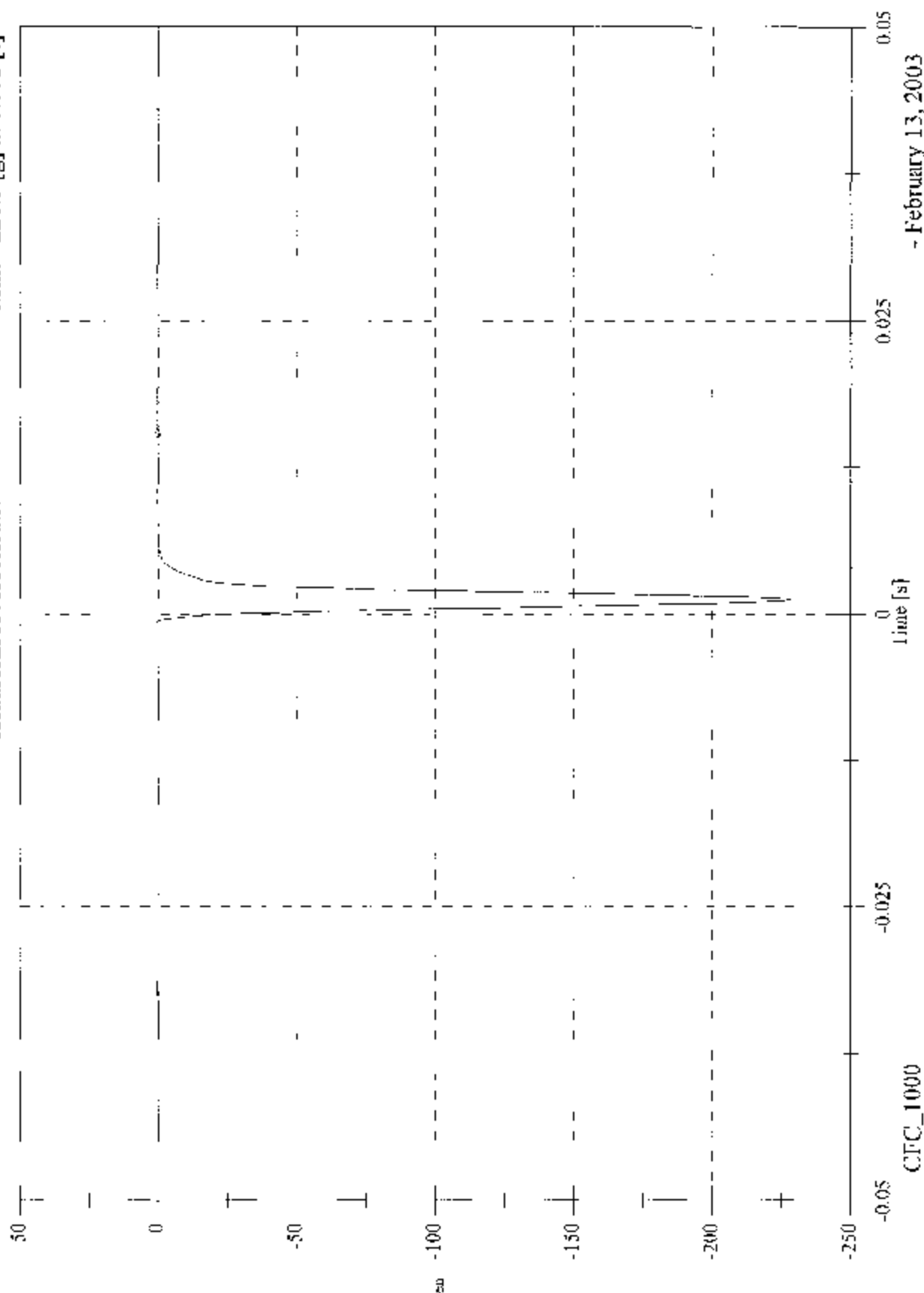
ID. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J28671	SEPT. 02	MARCH 03
2 - LATERAL	ENDEVCO	7264 2000T	J32770	SEPT. 02	MARCH 03
3 - VERTICAL	ENDEVCO	7264 2000T	J25854	SEPT. 02	MARCH 03

REMARKS:

FMVSS 2010 - Head Form Calibration Drops

Max: 1.0 [g] at 0.015 [s]
Min: -228.3 [g] at 0.001 [s]

Headform X Acceleration

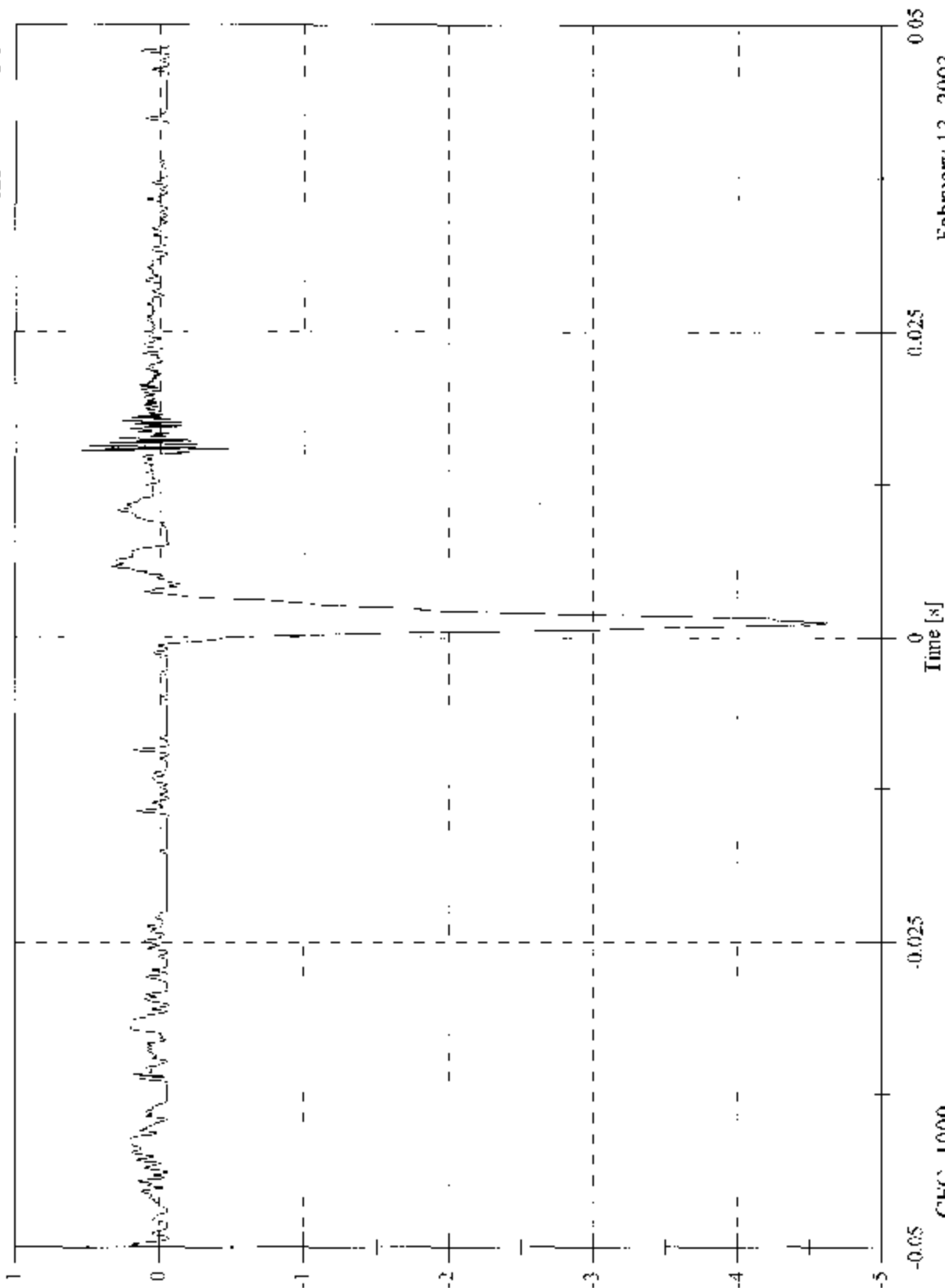


- February 13, 2003

FMVSS 201U - Head Form Calibration Drops

Headform Y Acceleration

Max: 0.5 [g] at 0.015 [s]
Min: -4.6 [g] at 0.001 [s]

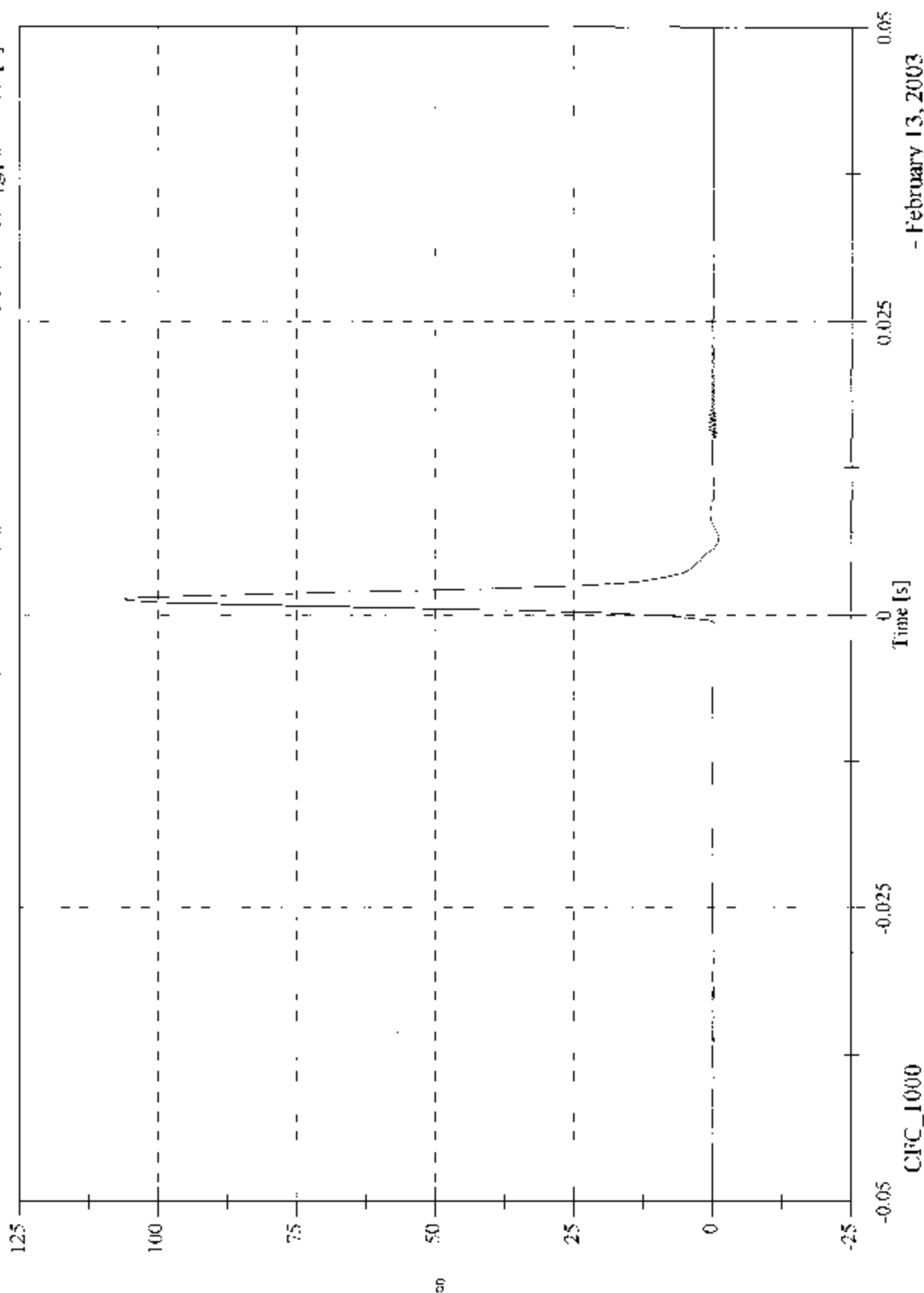


- February 13, 2003

FMVSS 201U - Head Form Calibration Drops

Headform Z Acceleration

Max: 106.3 [g] at 0.001 [s]
Min: -1.1 [g] at 0.007 [s]

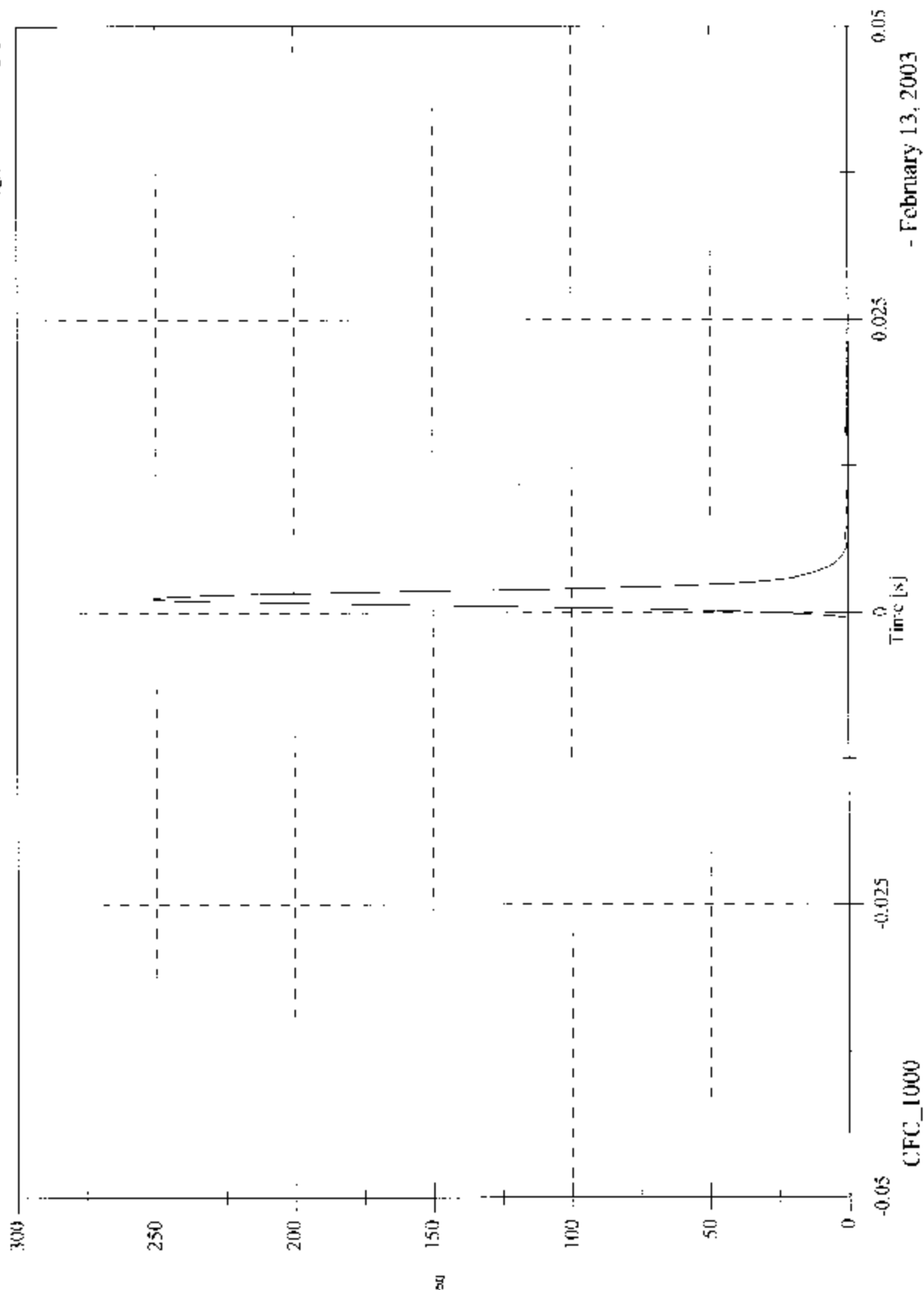


- February 13, 2003

FMVSS 201U - Head Form Calibration Drops

Max: 251.5 [g] at 0.001 [s]
Min: 0.0 [g] at -0.048 [s]

Headform Resultant



- February 13, 2003

PART S72L
HEAD DROP PRE-TEST

MANUFACTURER:	FIRST TECHNOLOGIES SAFETY SYSTEMS	
SERIAL NUMBER:	0642	
CALIBRATION DATE:	February 13, 2003	
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19°C to 26°C	22
RELATIVE HUMIDITY	10% to 70%	12
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	261.5
PEAK LATERAL ACCELERATION	15 Gs Maximum	2.9
IS ACCELERATION CURVE UNIMODAL?	YES	YES

HEAD ACCELEROMETER CALIBRATION INFORMATION

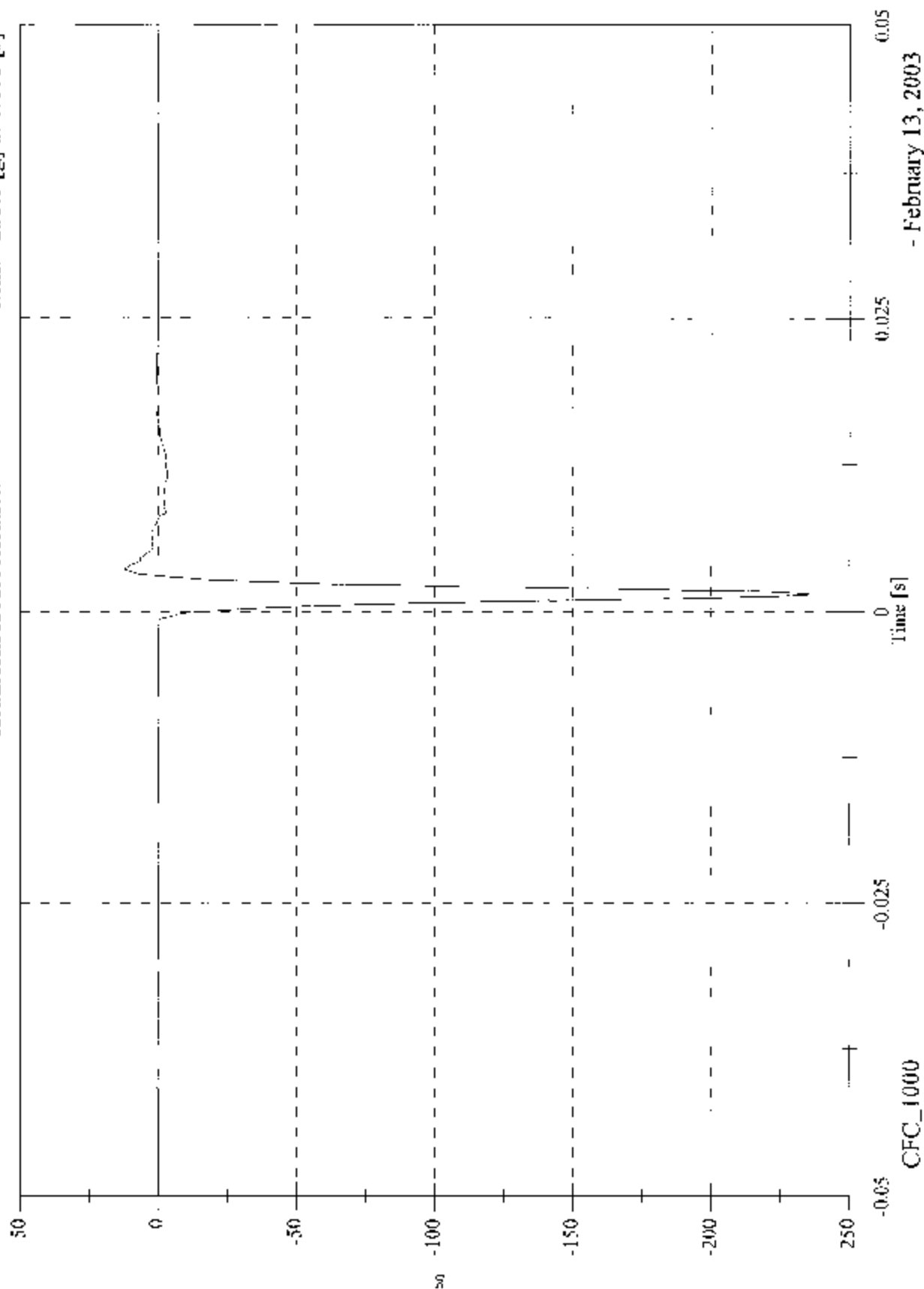
ID. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J24876	SEPT 02	MARCH 03
2 - LATERAL	ENDEVCO	7264-2000T	J35030	SEPT. 02	MARCH 03
3 - VERTICAL	ENDEVCO	7264-2000T	J31009	SEPT. 02	MARCH 03

REMARKS:

FMVSS 201U - Head Form Calibration Drops

Headform X Acceleration

Max: 12.1 [g] at 0.004 [s]
Min: -235.5 [g] at 0.001 [s]

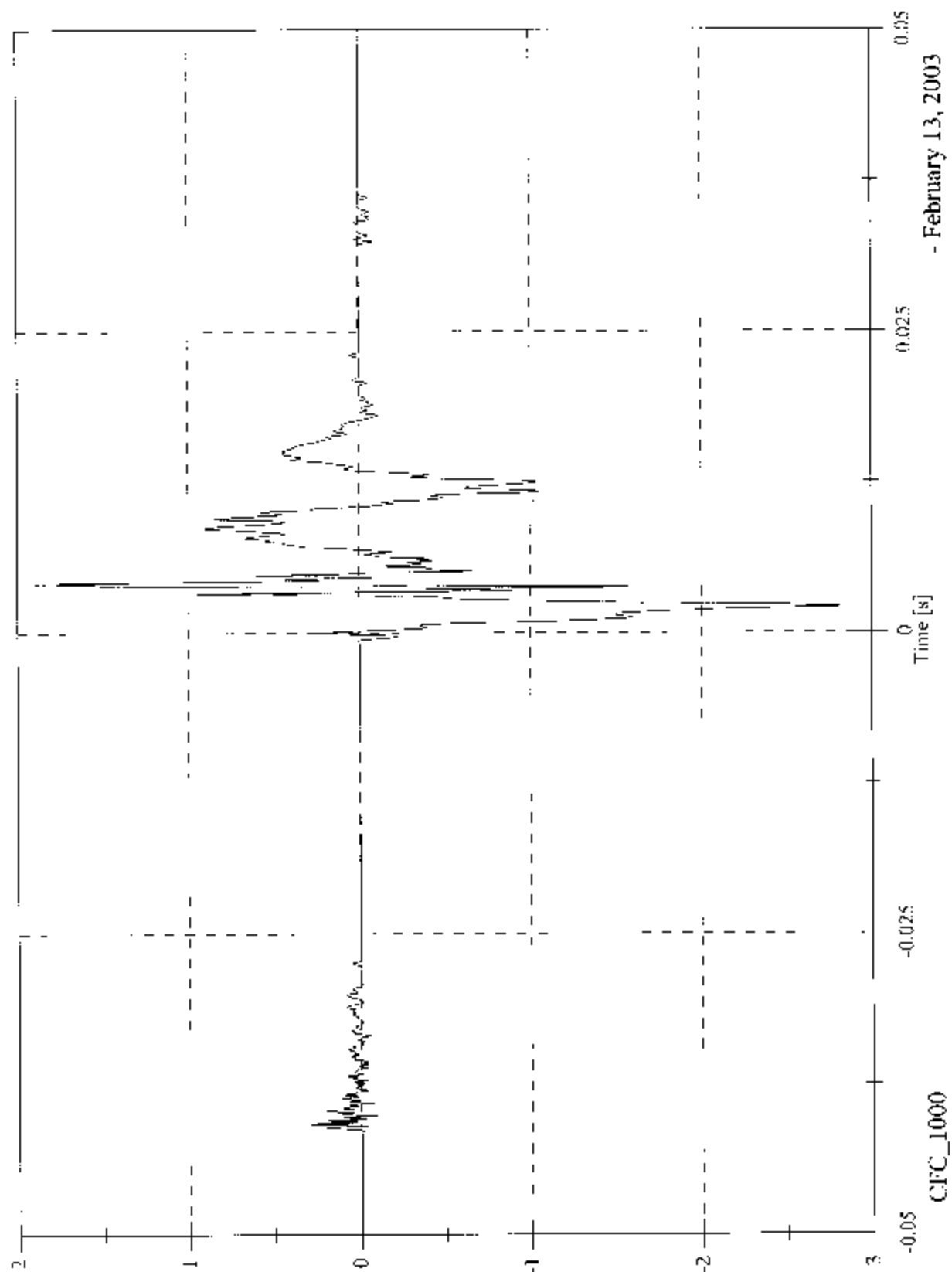


- February 13, 2003

FMVSS 201U - Head Form Calibration Drops

Max: 1.9 [g] at 0.004 [s]
Min: -2.9 [g] at 0.002 [s]

Headform Y Acceleration

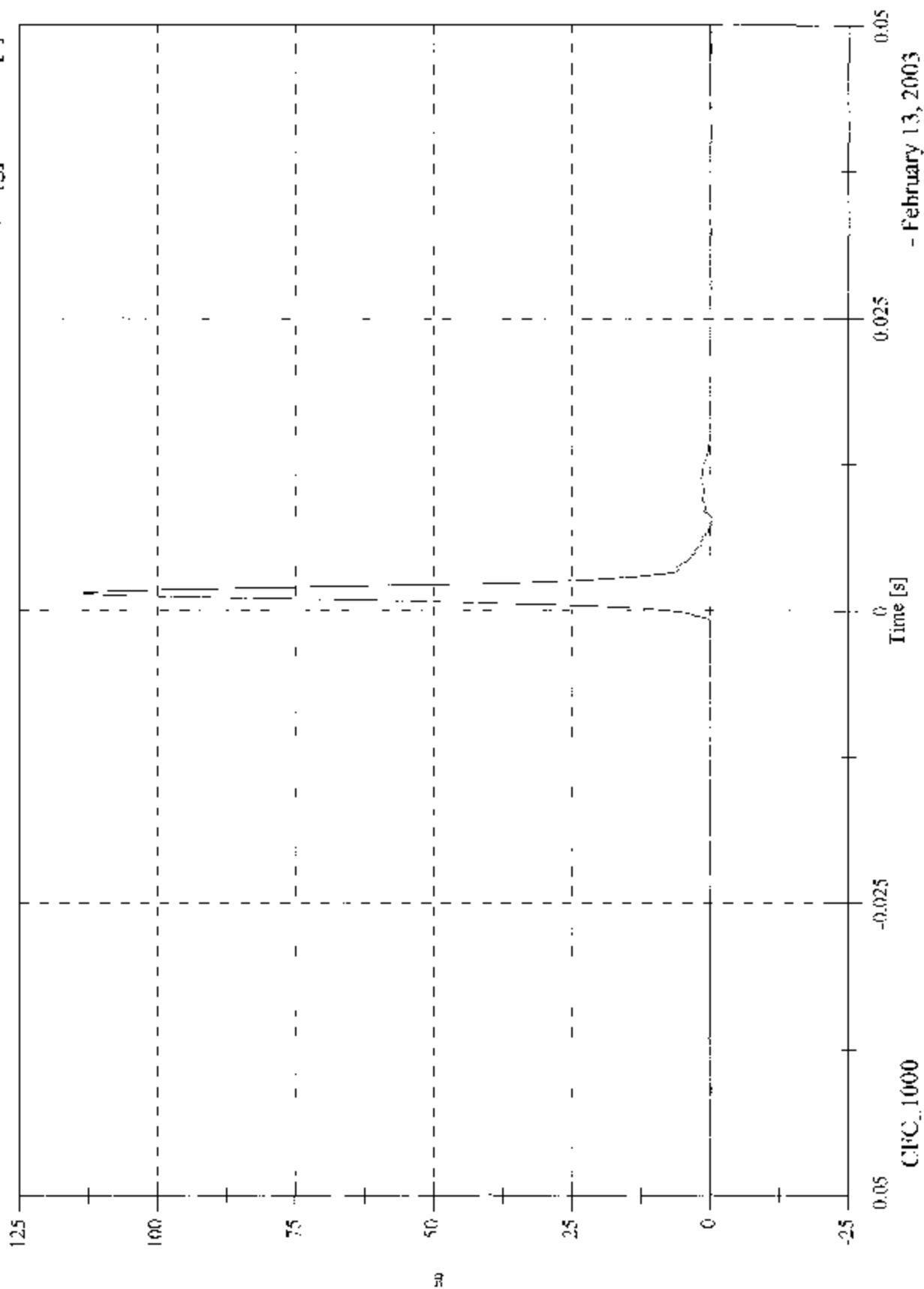


- February 13, 2003

FMVSS 2010 - Head Form Calibration Drops

Max: 113.7 [g] at 0.002 [s]
 Min: -0.4 [g] at -0.041 [s]

Headform Z Acceleration

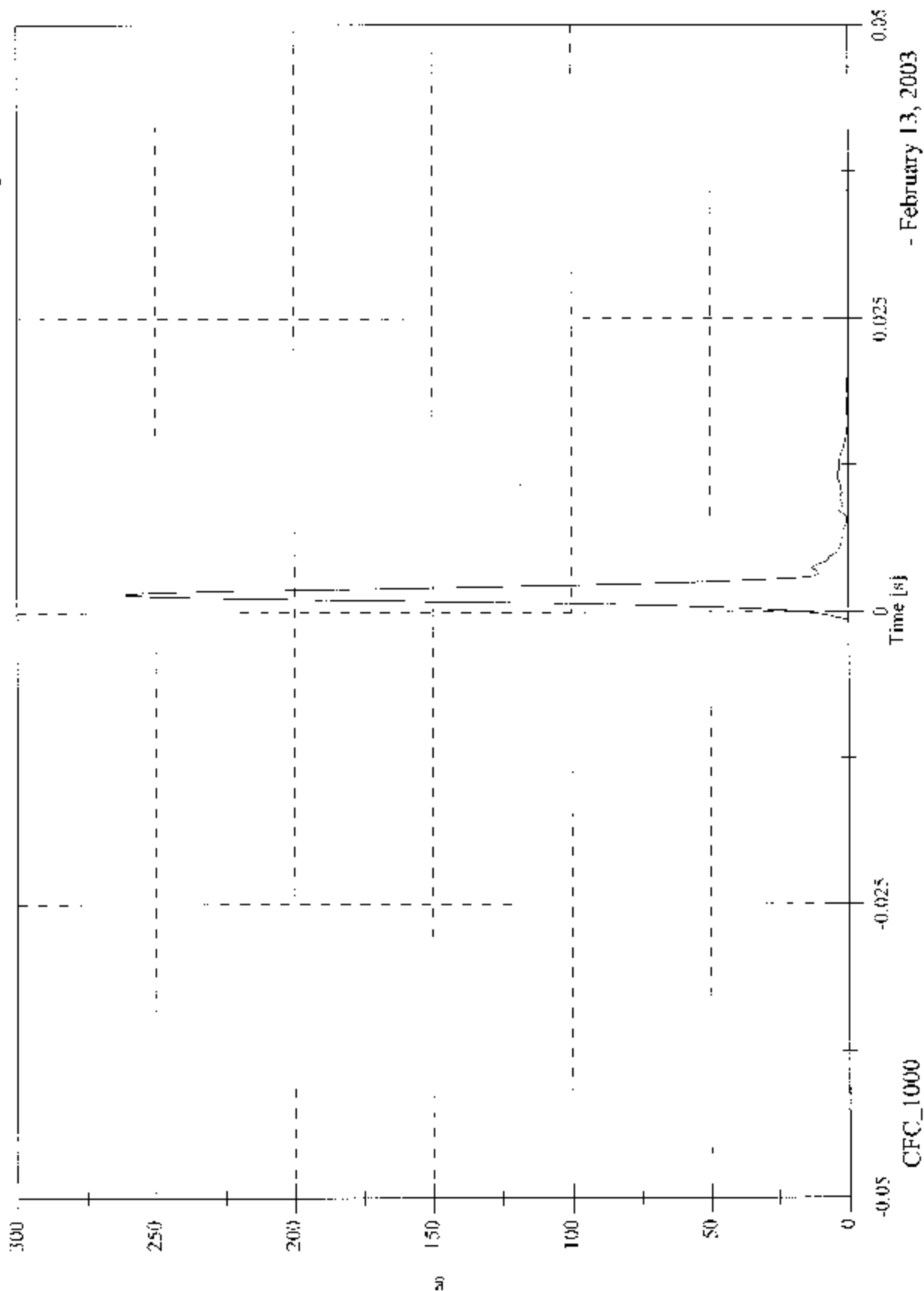


- February 13, 2003

Max: 261.5 [g] at 0.001 [s]
Min: 0.0 [g] at 0.023 [s]

Headform Resultant

FMVSS 201U - Head Form Calibration Drops



PART 572L
HEAD DROP PRE-TEST

MANUFACTURER:	FIRST TECHNOLOGIES SAFETY SYSTEMS	
SERIAL NUMBER:	805	
CALIBRATION DATE:	February 13, 2003	
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19°C to 26°C	22
RELATIVE HUMIDITY	10% to 70%	12
PEAK RESISTANT ACCELERATION	225 Gs to 275 Gs	240.7
PEAK LATERAL ACCELERATION	15 Gs Maximum	2.1
IS ACCELERATION CURVE UNIMODAL?	YES	YES

HEAD ACCELEROMETER CALIBRATION INFORMATION

ID NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J38127	SEPT. 02	MAR. 03
2 - LATERAL	ENDEVCO	7264-2000T	J37980	SEPT. 02	MAR. 03
3 - VERTICAL	ENDEVCO	7264-2000T	J37854	SEPT. 02	MAR. 03

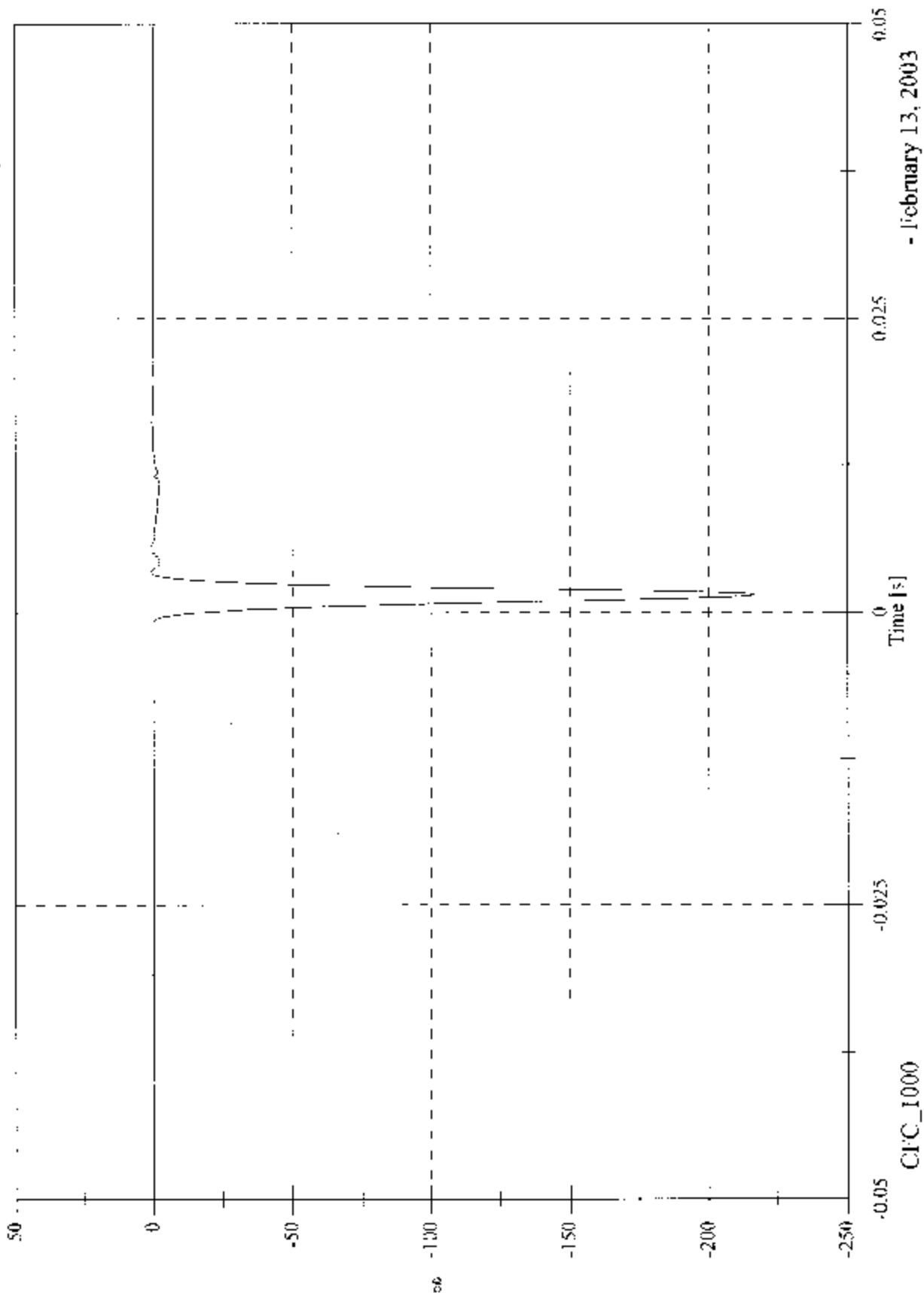
REMARKS:

FMVSS 201U - Head Form Calibration Drops

Max: 1.3 [g] at 0.005 [s]

Min: -216.4 [g] at 0.001 [s]

Headform X Acceleration



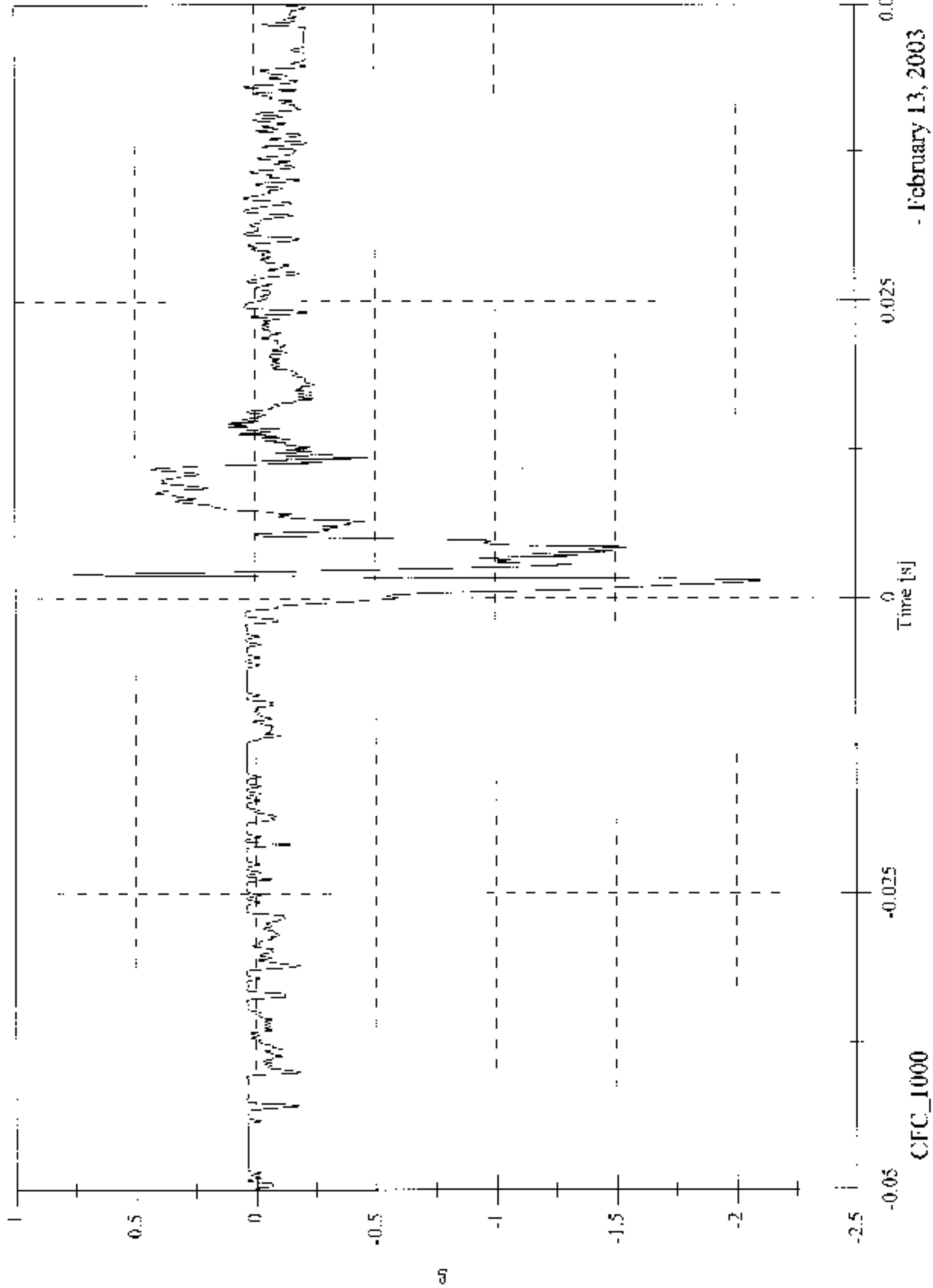
- February 13, 2003

FMVSS 2010 - Head Form Calibration Drops

Headform Y Acceleration

Max: 0.8 [g] at 0.002 [s]

Min: -2.1 [g] at 0.001 [s]

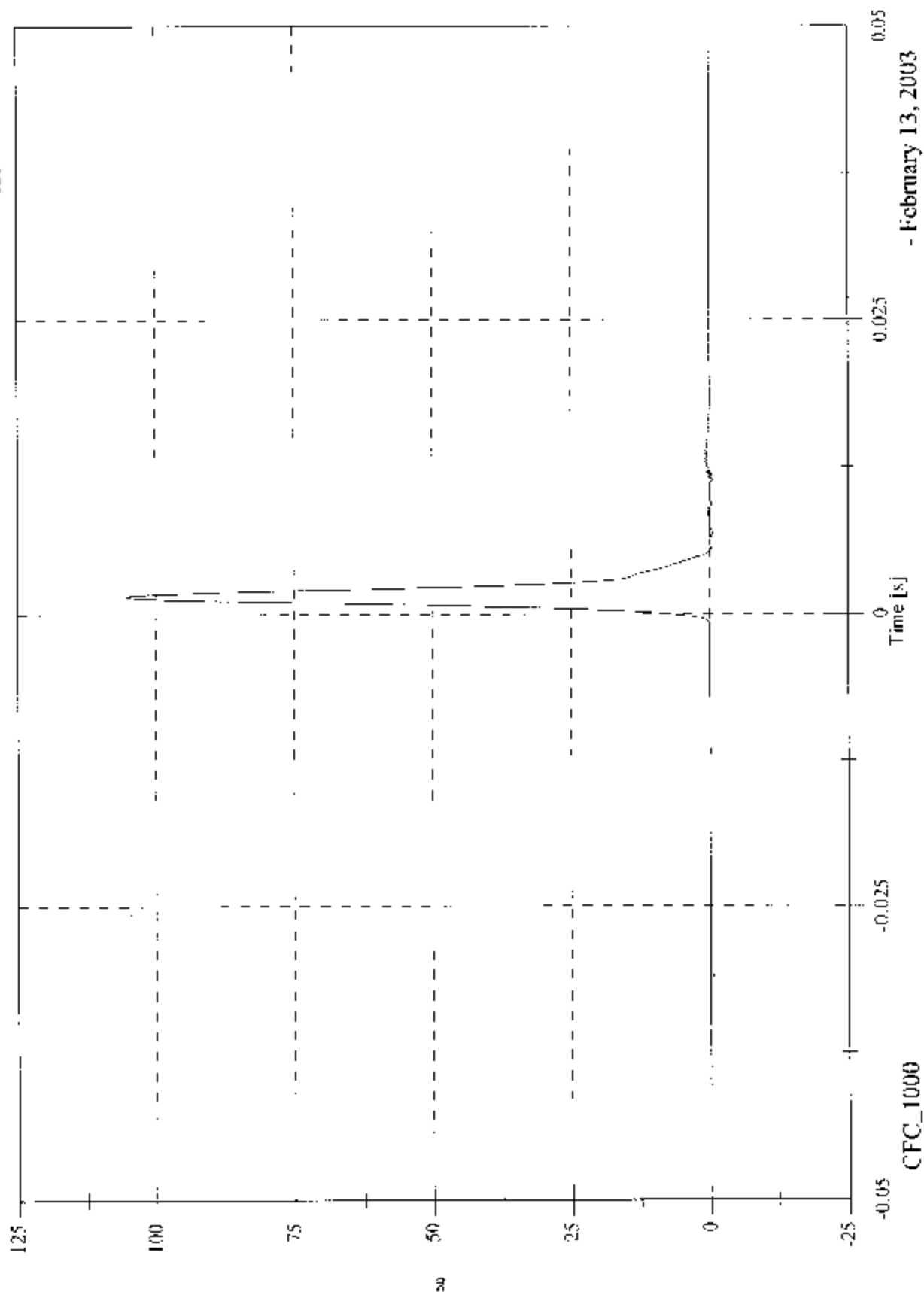


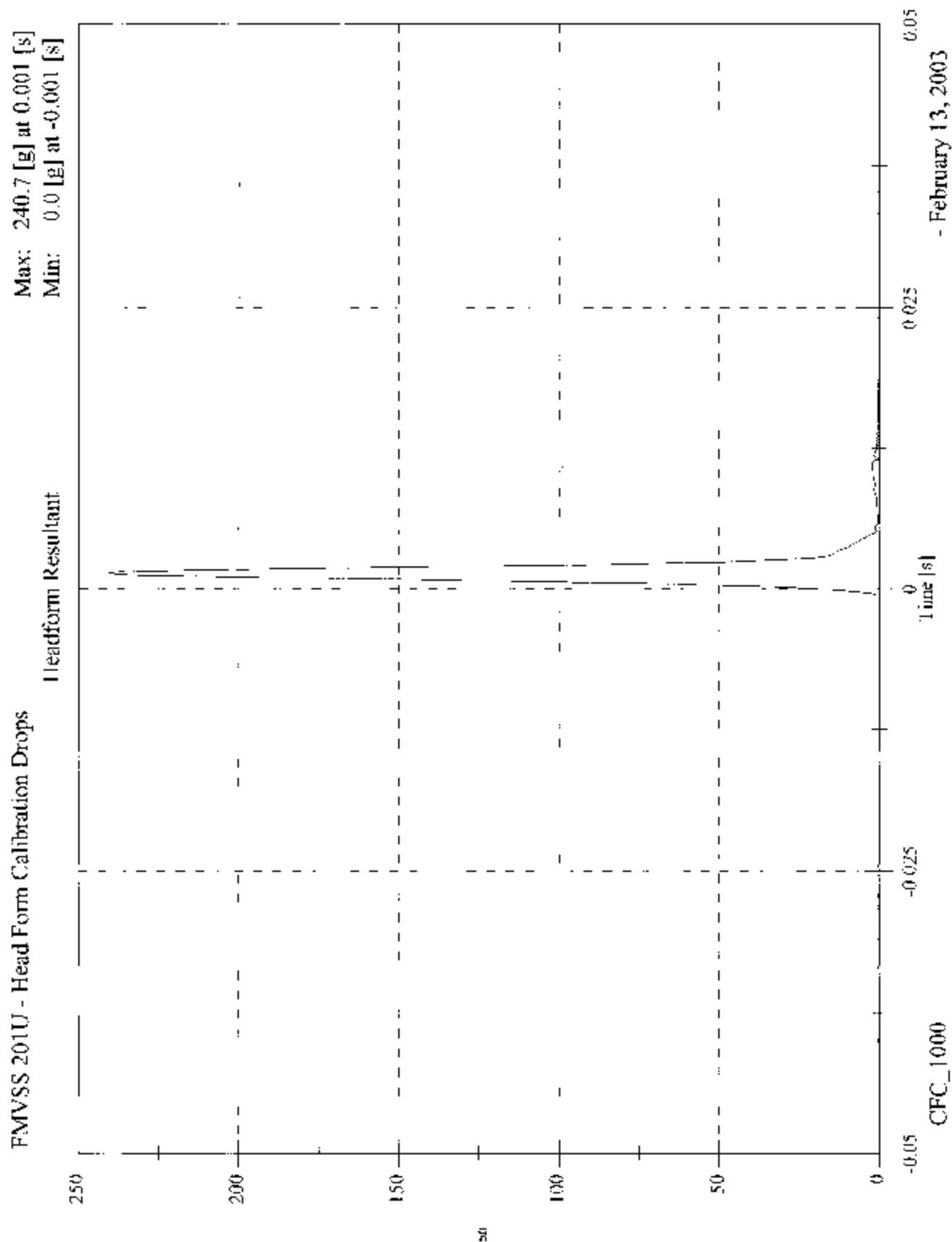
February 13, 2003

FMVSS 201U - Head Form Calibration Drops

Max: 105.3 [g] at 0.001 [s]
Min: -0.6 [g] at 0.007 [s]

Headform Z Acceleration





PART 57M.
HEAD DROP PRE-TEST

MANUFACTURER:	APPLIED SAFETY TECHNOLOGIES CORPORATION	
SERIAL NUMBER:	1255	
CALIBRATION DATE:	February 12, 2003	
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE:	19°C to 26°C	22
RELATIVE HUMIDITY	10% to 70%	12
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	273.9
PEAK LATERAL ACCELERATION	15 Gs Maximum	4.0
IS ACCELERATION CURVE UNIMODAL?	YES	YES

HEAD ACCELBRMETER CALIBRATION INFORMATION

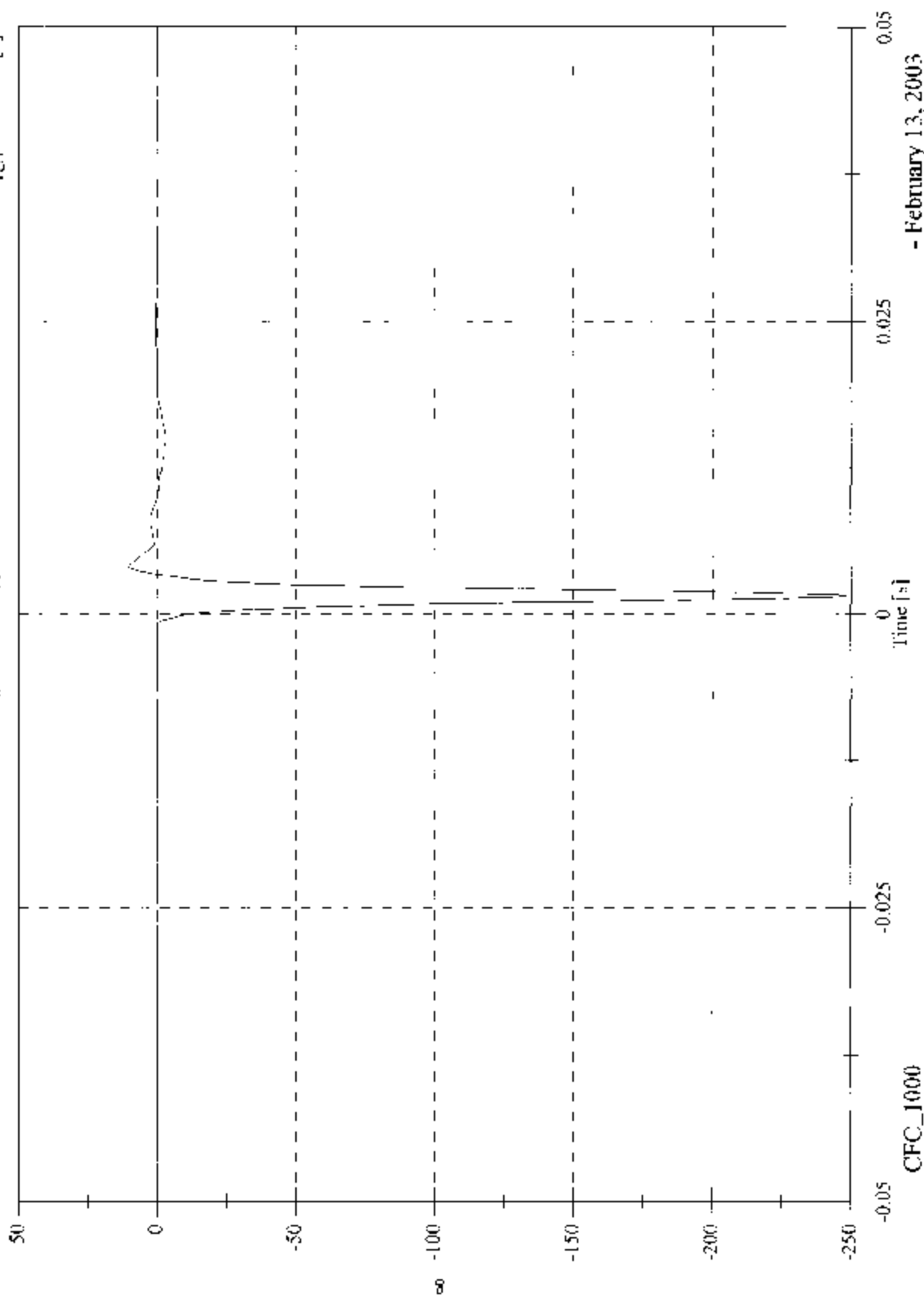
ID. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J41006	SEPT. 02	MAR. 03
2 - LATERAL	ENDEVCO	7264-2000T	J40994	SEPT. 02	MAR. 03
3 - VERTICAL	ENDEVCO	7264-2000T	J41007	SEPT. 02	MAR. 03

REMARKS:

FMVSS 2010 - Head Form Calibration Drops

Max: 10.7 [g] at 0.004 [s]
Min: -248.0 [g] at 0.002 [s]

Headform X Acceleration

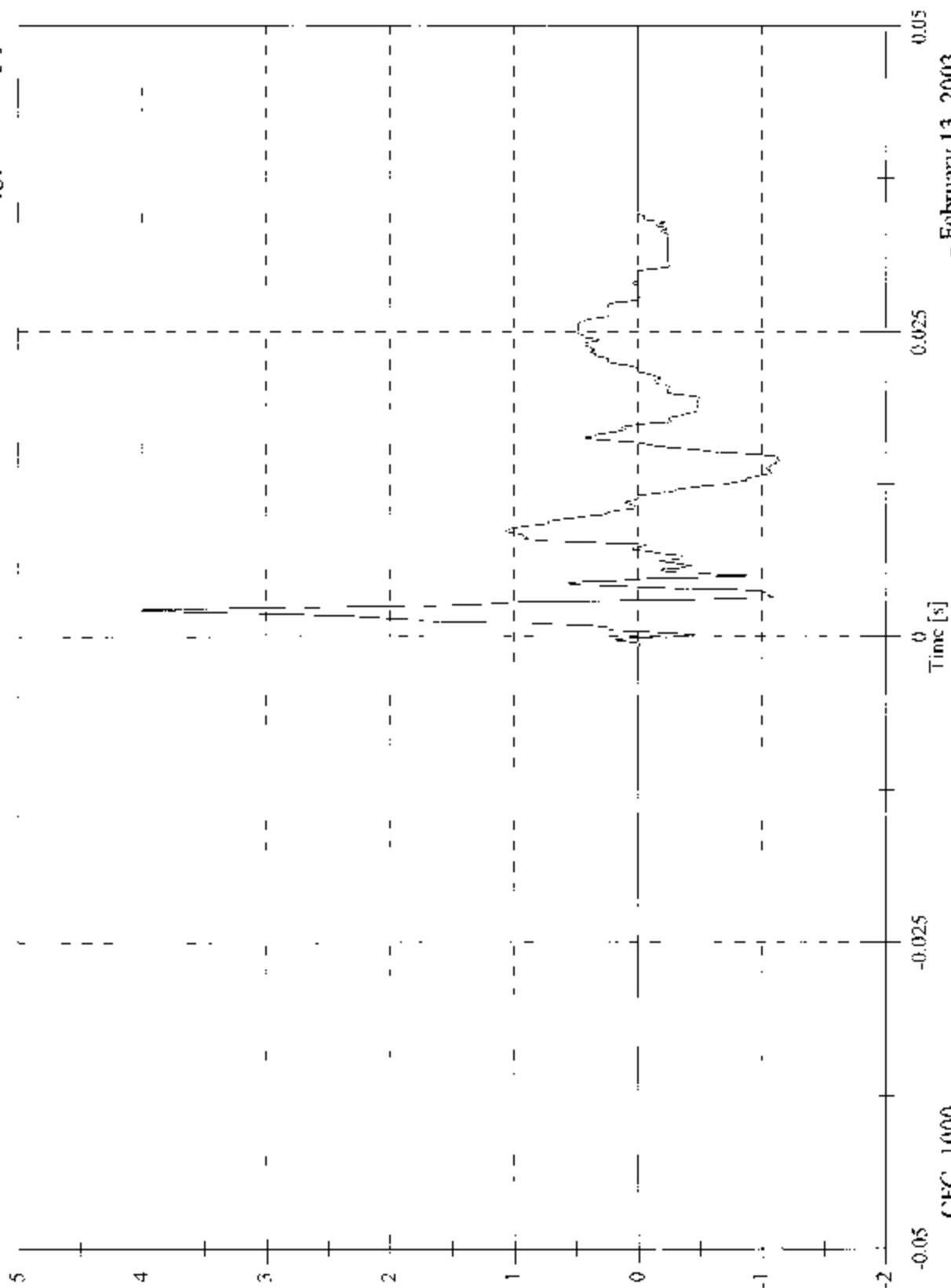


- February 13, 2003

FMVSS 201U - Head Form Calibration Drops

Headform Y Acceleration

Max: 4.0 [g] at 0.002 [s]
Min: -1.1 [g] at 0.014 [s]

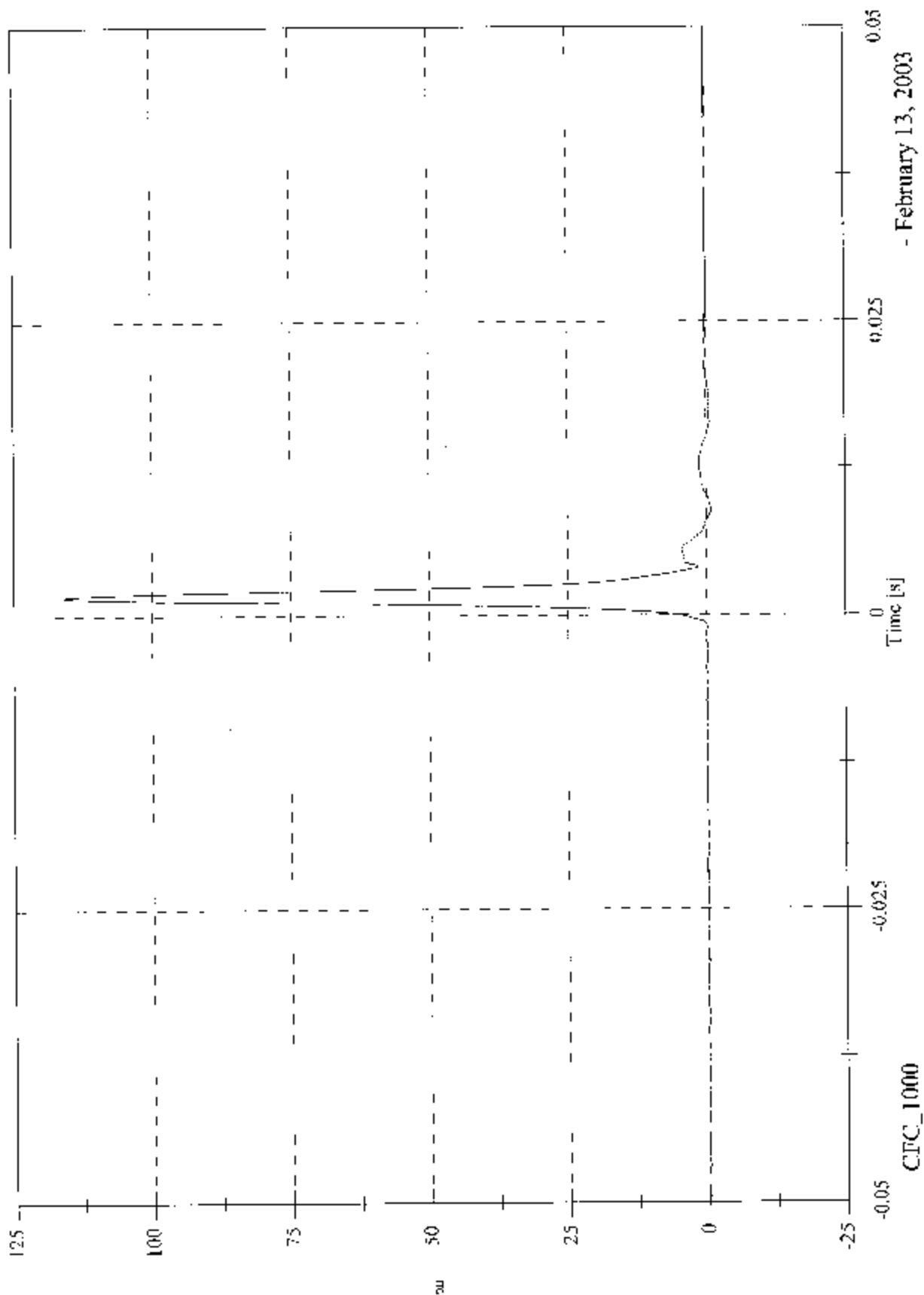


- February 13, 2003

FMVSS 2010 - Head Form Calibration Drops

Headform % Acceleration

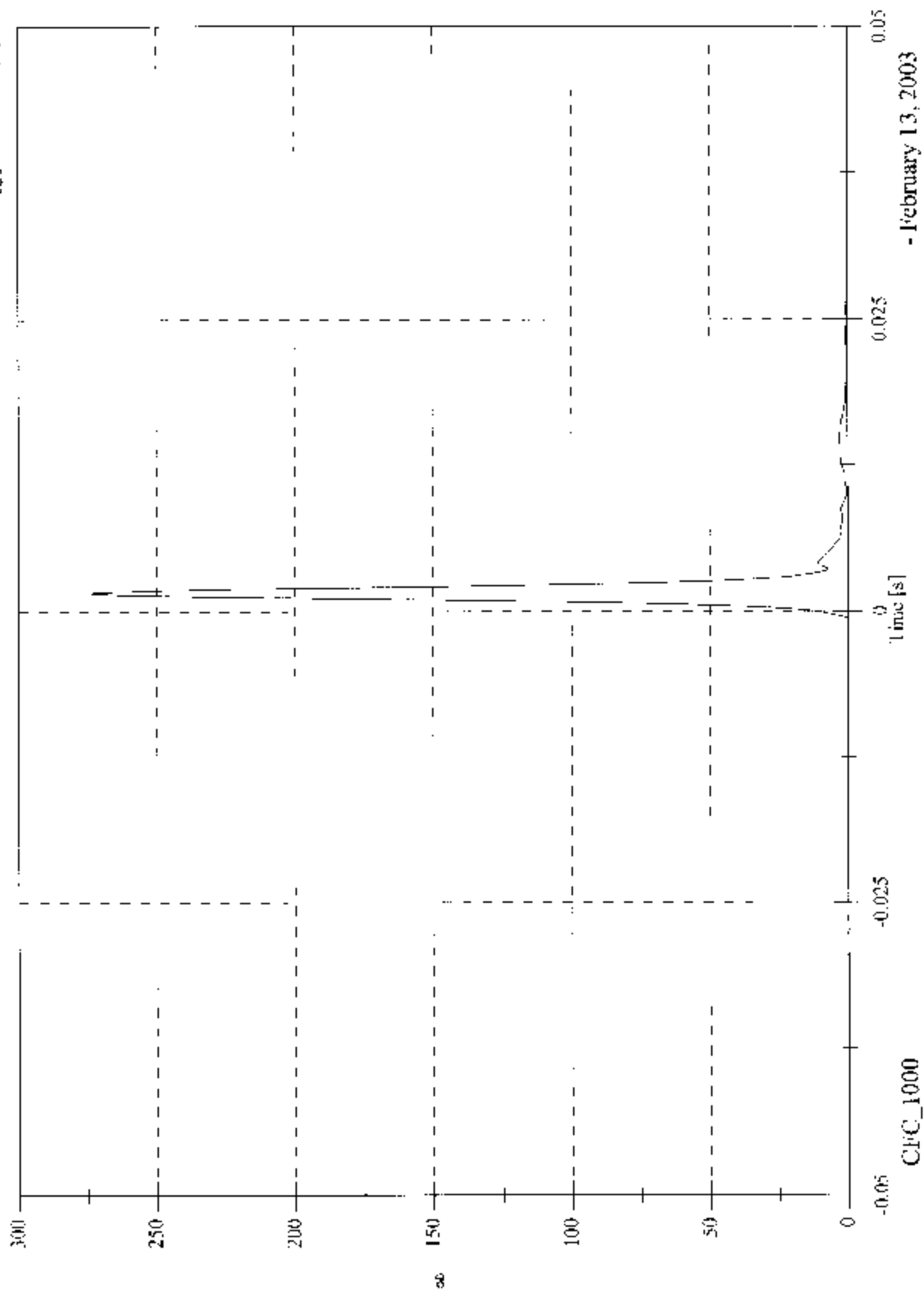
Max: 116.2 [g] at 0.002 [s]
Min: -0.9 [g] at 0.009 [s]



IMVSS 201U - Head Form Calibration Drops

Max: 273.9 [g] at 0.002 [s]
 Min: 0.0 [g] at -0.018 [s]

Headform Resultant



PART 5721
HEAD DROP POST-TEST

MANUFACTURER:	APPLIED SAFETY TECHNOLOGIES CORPORATION	
SERIAL NUMBER:	0062	
CALIBRATION DATE:	February 27, 2003	
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19°C to 26°C	22
RELATIVE HUMIDITY	10% to 70%	17
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	245.2
PEAK LATERAL ACCELERATION	15 Gs Maximum	10.1
IS ACCELERATION CURVE UNIMODAL?	YES	YES

HEAD ACCELEROMETER CALIBRATION INFORMATION

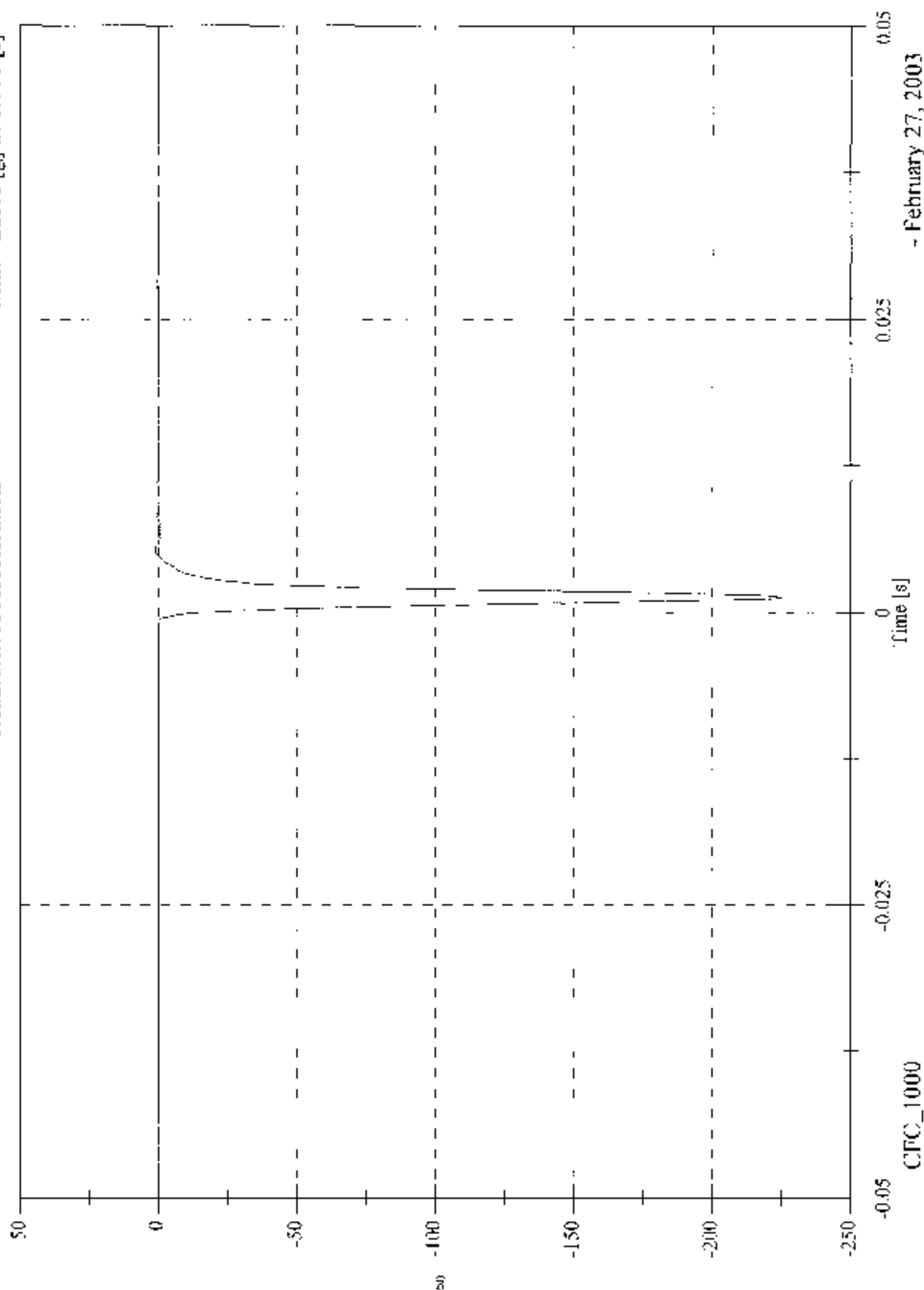
ID. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	333127	SEPT. 02	MAR. 03
2 - LATERAL	ENDEVCO	7264-2000T	333019	SEPT. 02	MAR. 03
3 - VERTICAL	ENDEVCO	7264-2000T	332782	SEPT. 02	MAR. 03

REMARKS:

FMVSS 201U - Head Form Calibration Drops

Max: 1.1 [g] at 0.005 [s]
Min: -225.1 [g] at 0.001 [s]

Headform X Acceleration

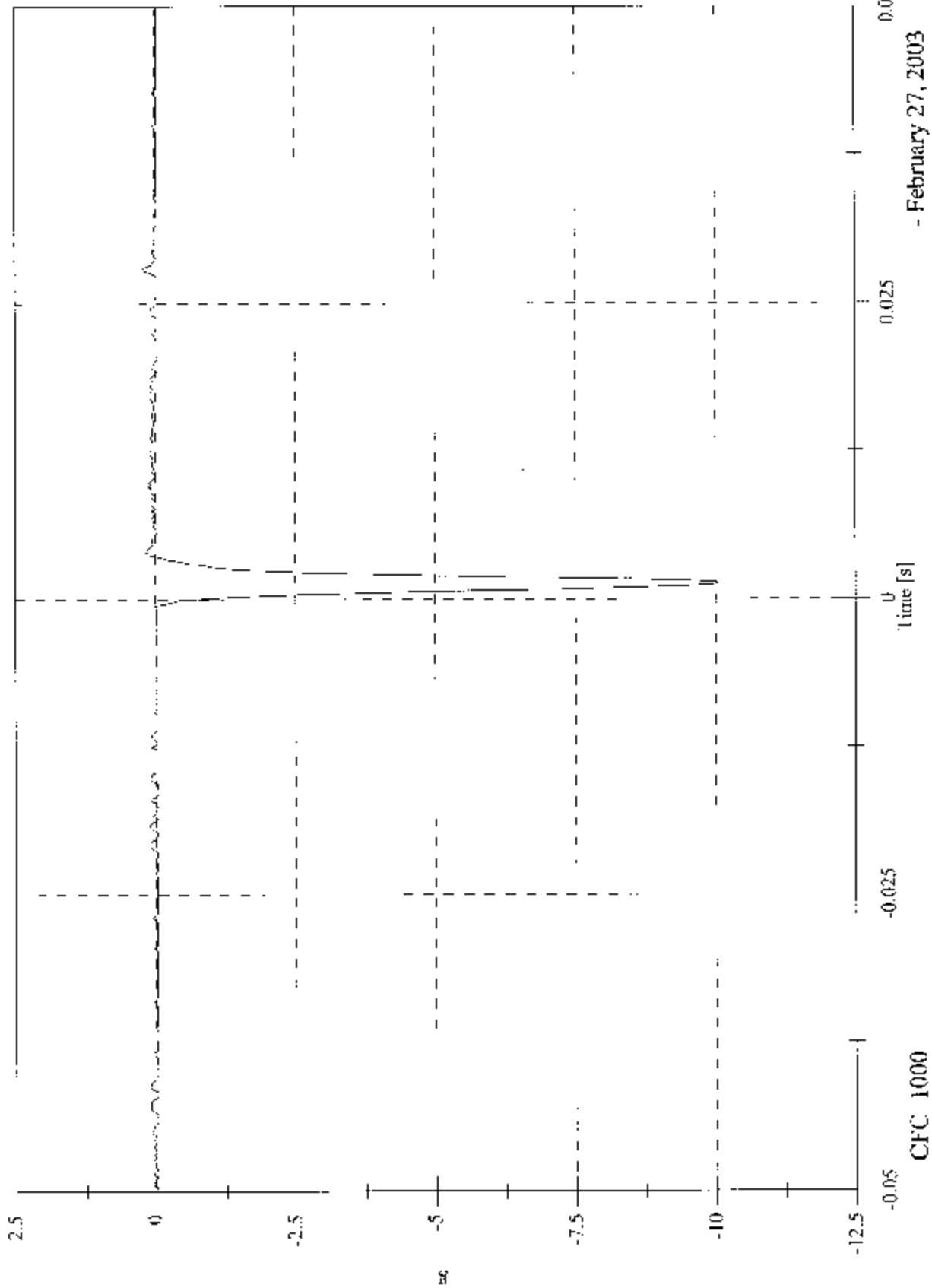


- February 27, 2003

PMVSS 201U - Head Form Calibration Drops

Max: 0.2 [g] at 0.028 [s]
Min: -10.1 [g] at 0.001 [s]

Headform Y Acceleration



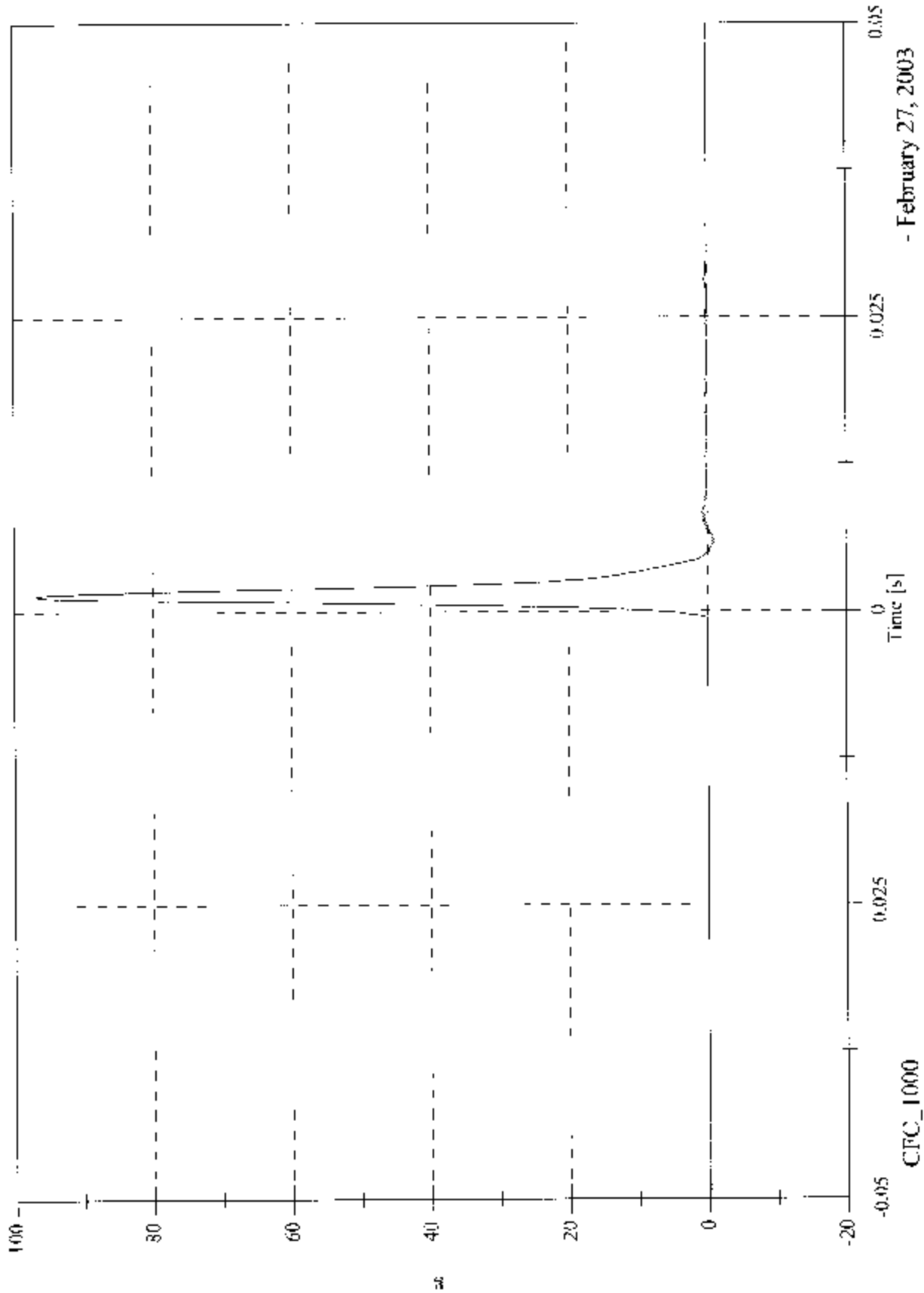
CFC 1000

- February 27, 2003

FMVSS 201U - Head Form Calibration Drops

Headform Z Acceleration

Max: 96.9 [g] at 0.001 [s]
Min: -1.0 [g] at 0.006 [s]

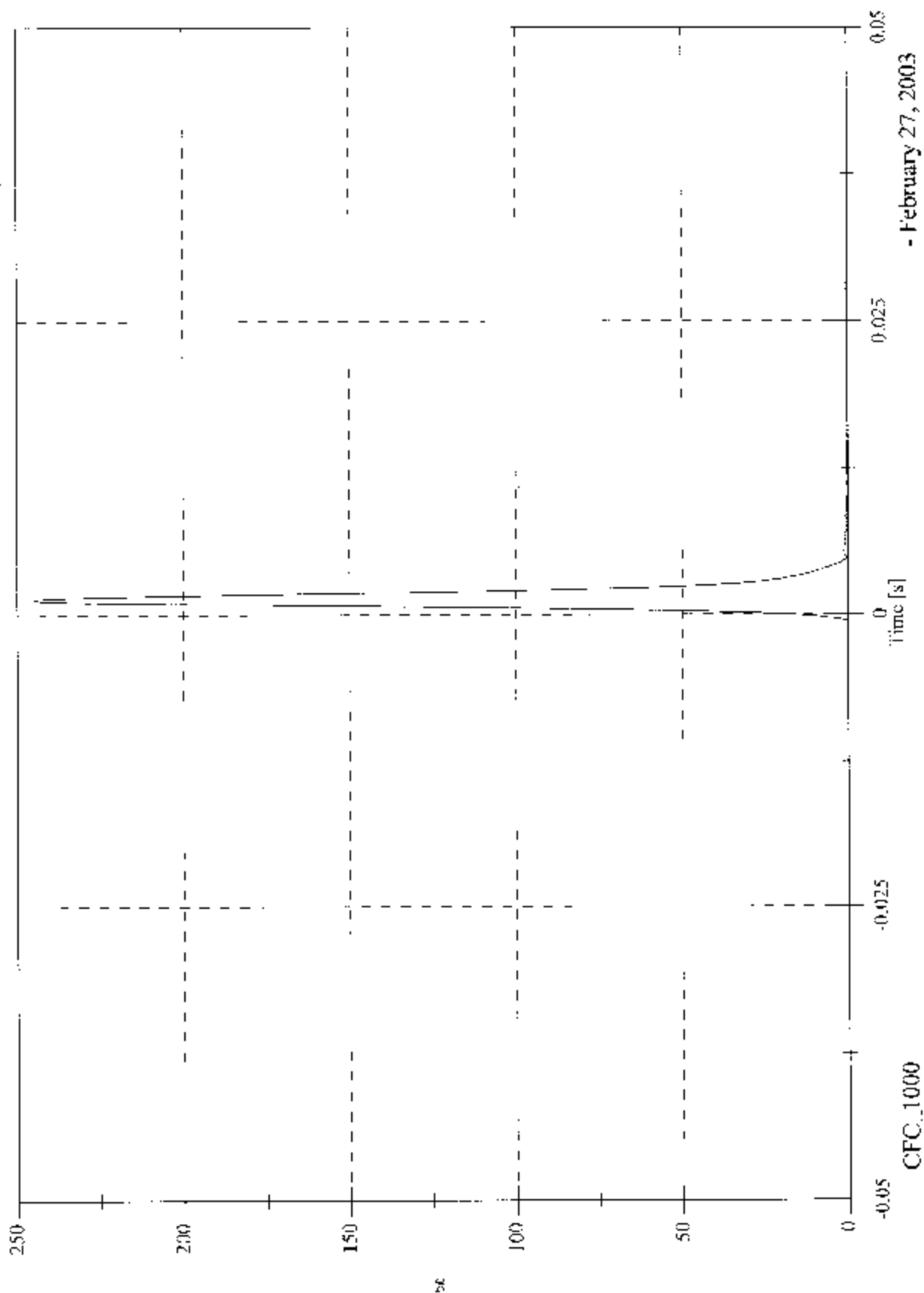


- February 27, 2003

FMVSS 201U - Head Form Calibration Drops

Max: 245.2 [g] at 0.001 [s]
Min: 0.0 [g] at -0.034 [s]

Headform Resultant



- February 27, 2003

PART 572L
HEAD DROP POST-TEST

MANUFACTURER:	APPLIED SAFETY TECHNOLOGIES CORPORATION	
SERIAL NUMBER:	0355	
CALIBRATION DATE:	February 27, 2003	
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19°C to 26°C	22
RELATIVE HUMIDITY	10% to 70%	17
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	229.3
PEAK LATERAL ACCELERATION	15 Gs Maximum	5.6
IS ACCELERATION CURVE UNIMODAL?	YES	YES

HEAD ACCELEROMETER CALIBRATION INFORMATION

ID NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDRESCO	7264-2000T	328671	SEPT. 02	MAR. 03
2 - LATERAL	ENDRESCO	7264-2000T	332779	SEPT. 02	MAR. 03
3 - VERTICAL	ENDRESCO	7264-2000T	325854	SEPT. 02	MAR. 03

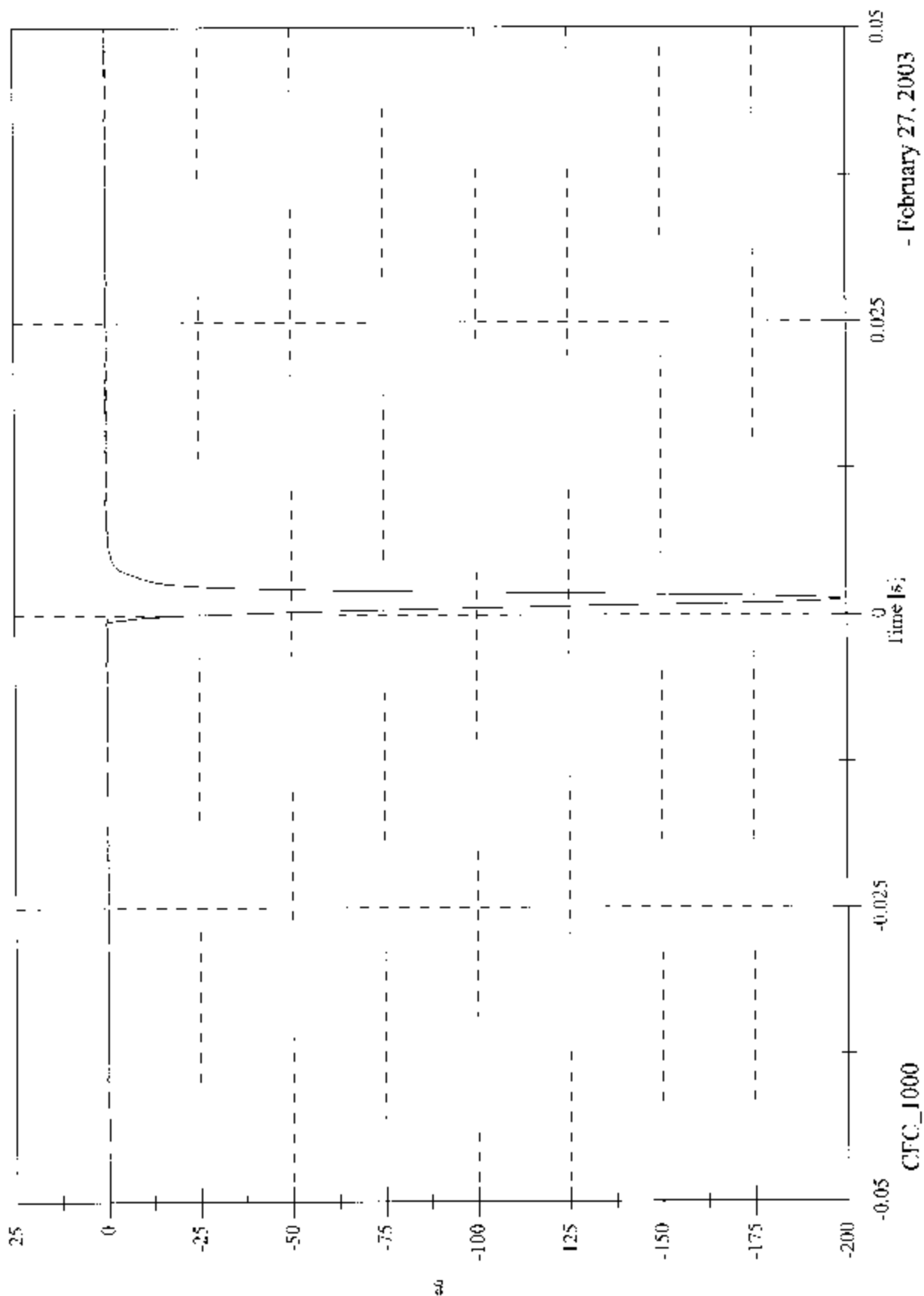
REMARKS:

FMVSS 201C - Head Form Calibration Drops

Max: 0.6 [g] at -0.039 [s]

Min: -198.5 [g] at 0.001 [s]

Headform X Acceleration

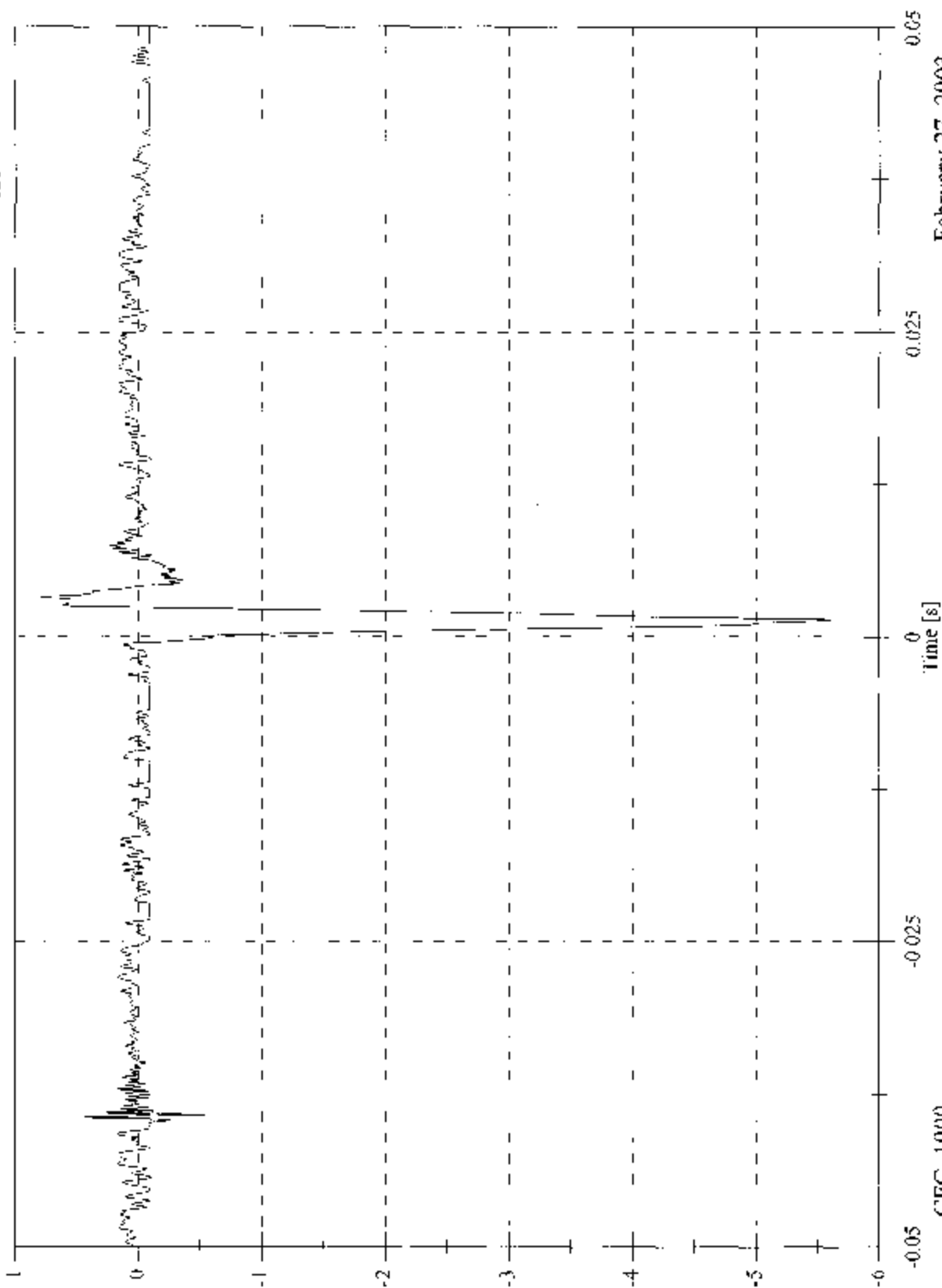


- February 27, 2003

FMVSS 201U - Head Form Calibration Drops

Headform Y Acceleration

Max: 0.8 [g] at 0.003 [s]
Min: -5.6 [g] at 0.001 [s]

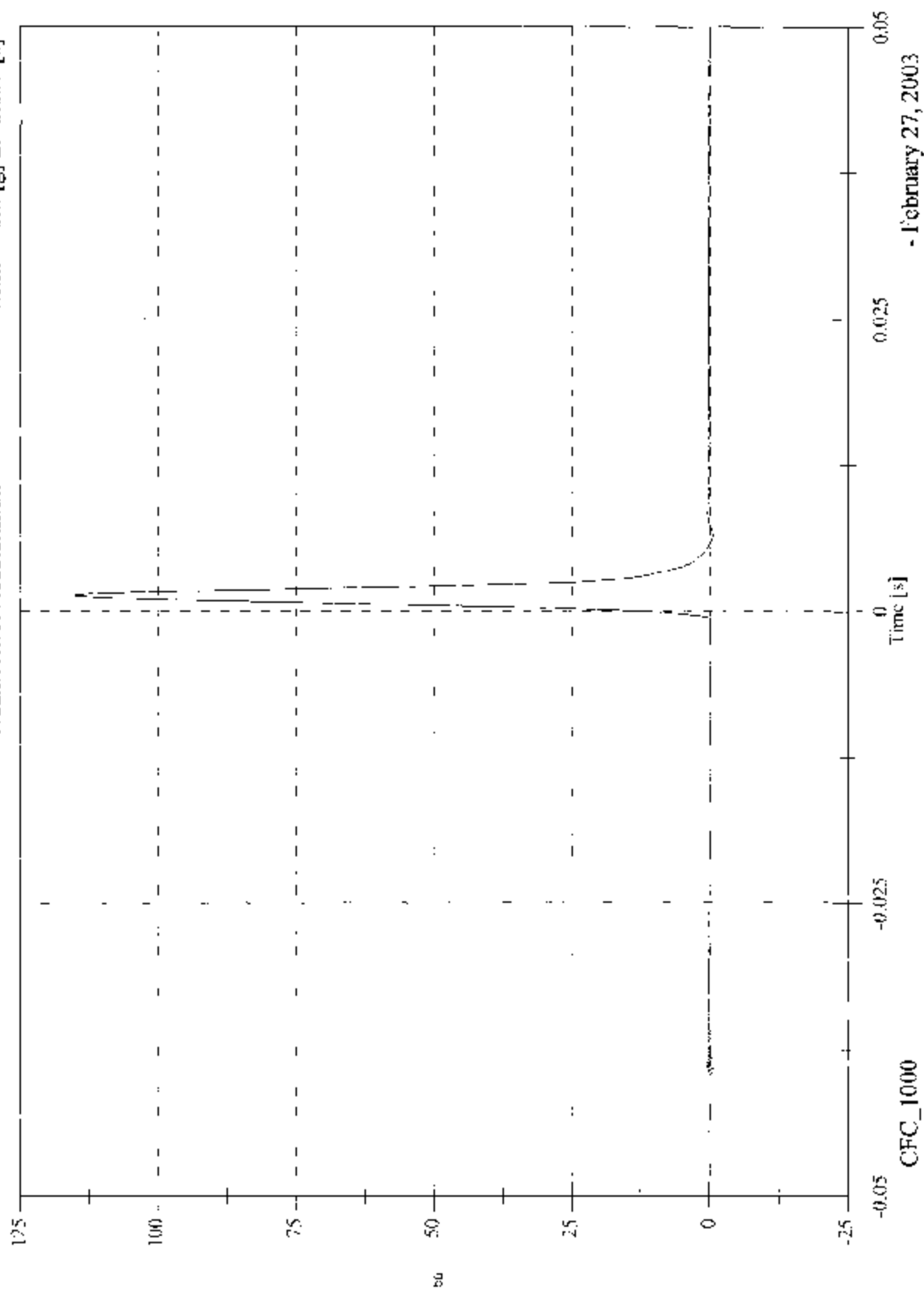


- February 27, 2003

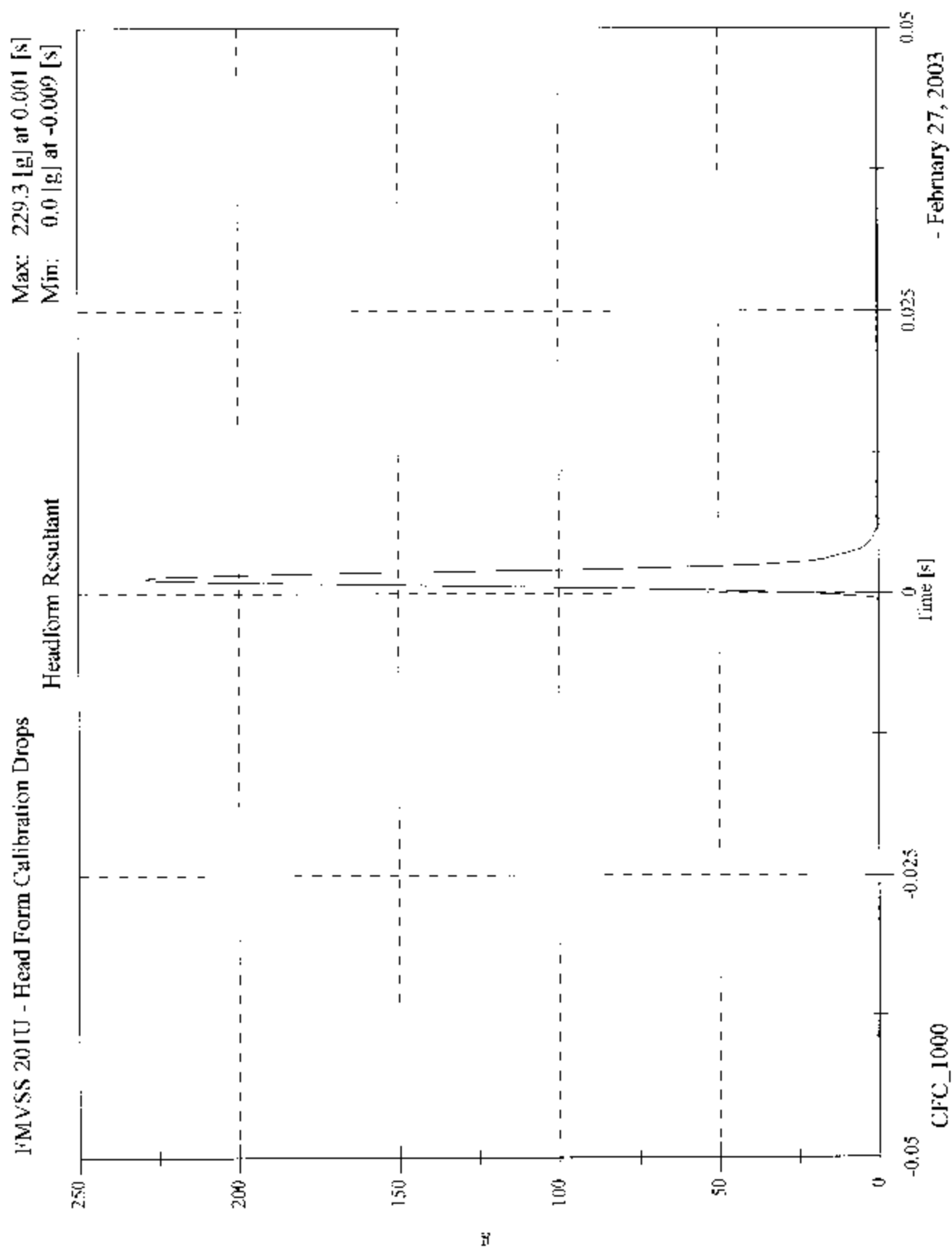
FMVSS 201U - Head Form Calibration Drops

Max: 115.3 [g] at 0.001 [s]
 Min: -0.6 [g] at -0.039 [s]

Headform Z Acceleration



- February 27, 2003



PART 5721
JICAD DROP POST TEST

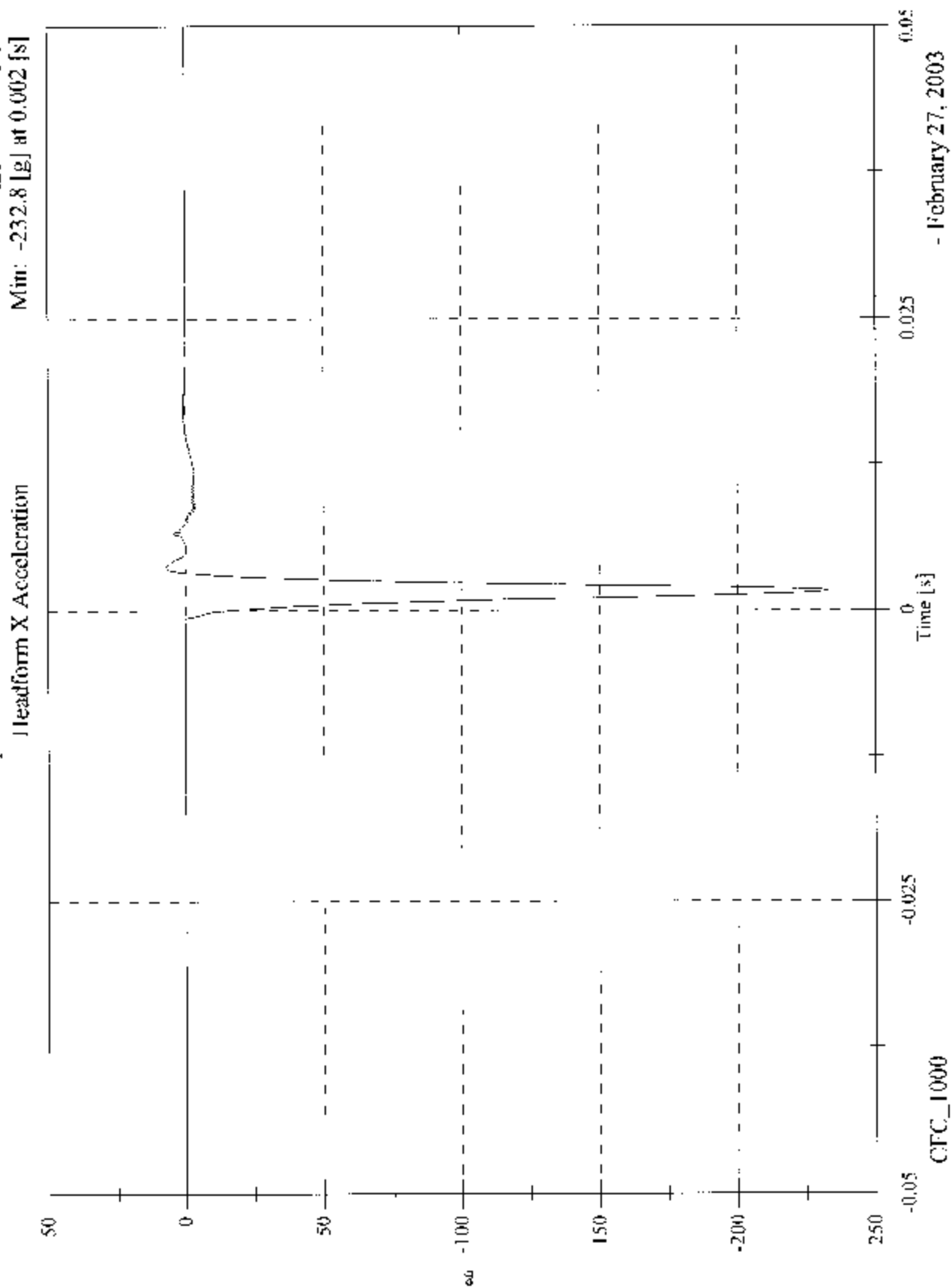
MANUFACTURER:	FIRST TECHNOLOGIES SAFETY SYSTEMS	
SERIAL NUMBER:	0642	
CALIBRATION DATE:	February 27, 2003	
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19°C to 26°C	22
RELATIVE HUMIDITY	10% to 70%	17
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	247.4
PEAK LATERAL ACCELERATION	15 Gs Maximum	4.9
IS ACCELERATION CURVE UNIMODAL?	YES	YES

HEAD ACCELEROMETER CALIBRATION INFORMATION

ID. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J24876	SEPT. 02	MAR. 03
2 - LATERAL	ENDEVCO	7264-2000T	J33030	SEPT. 02	MAR. 03
3 - VERTICAL	ENDEVCO	7264-2000T	J11005	SEPT. 02	MAR. 03

REMARKS:

FMVSS 201C - Head Form Calibration Drops

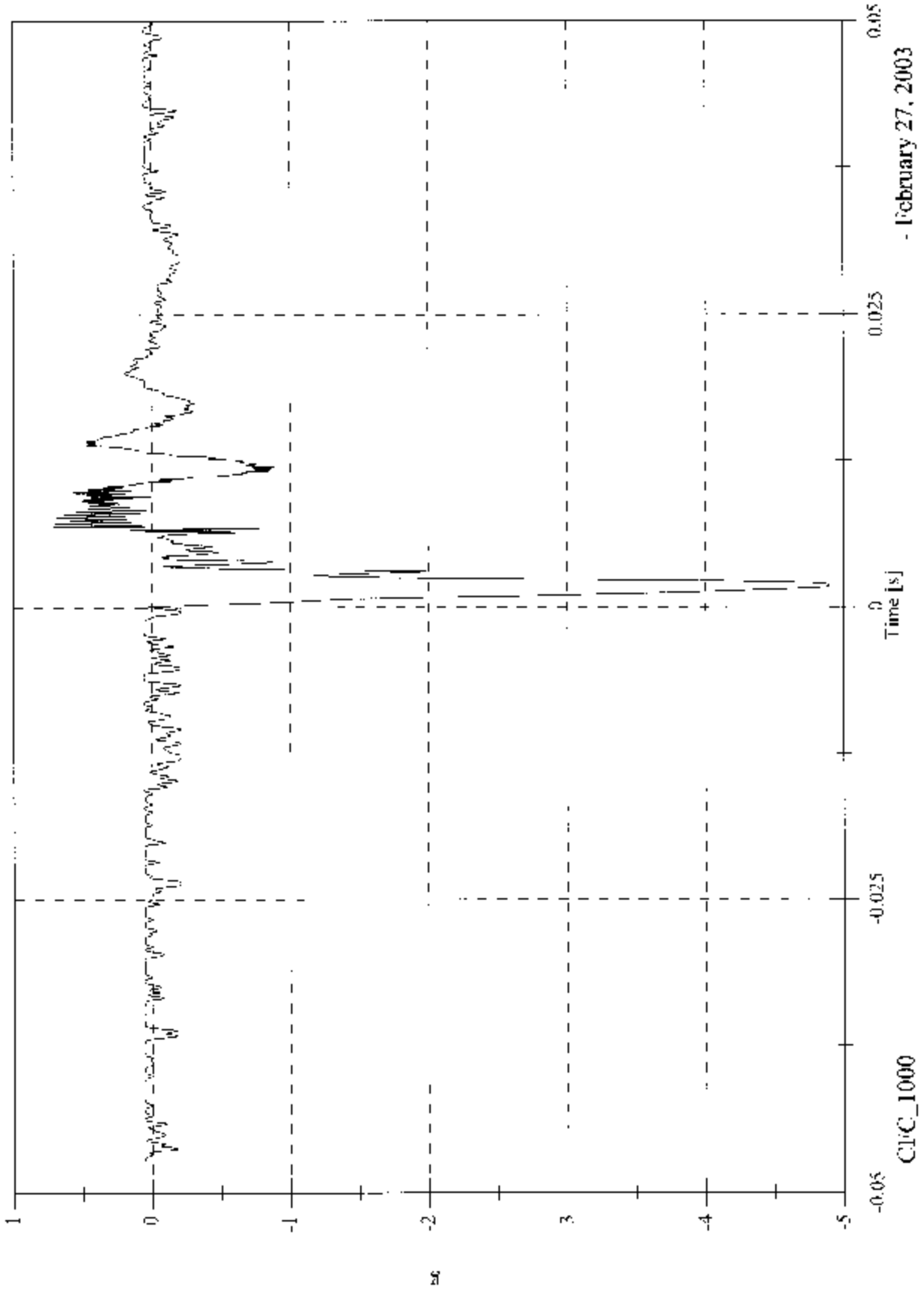


- February 27, 2003

FMVSS 201U - Head Form Calibration Drops

Max: 0.7 [g] at 0.007 [s]
Min: -4.9 [g] at 0.002 [s]

Headform Y Acceleration

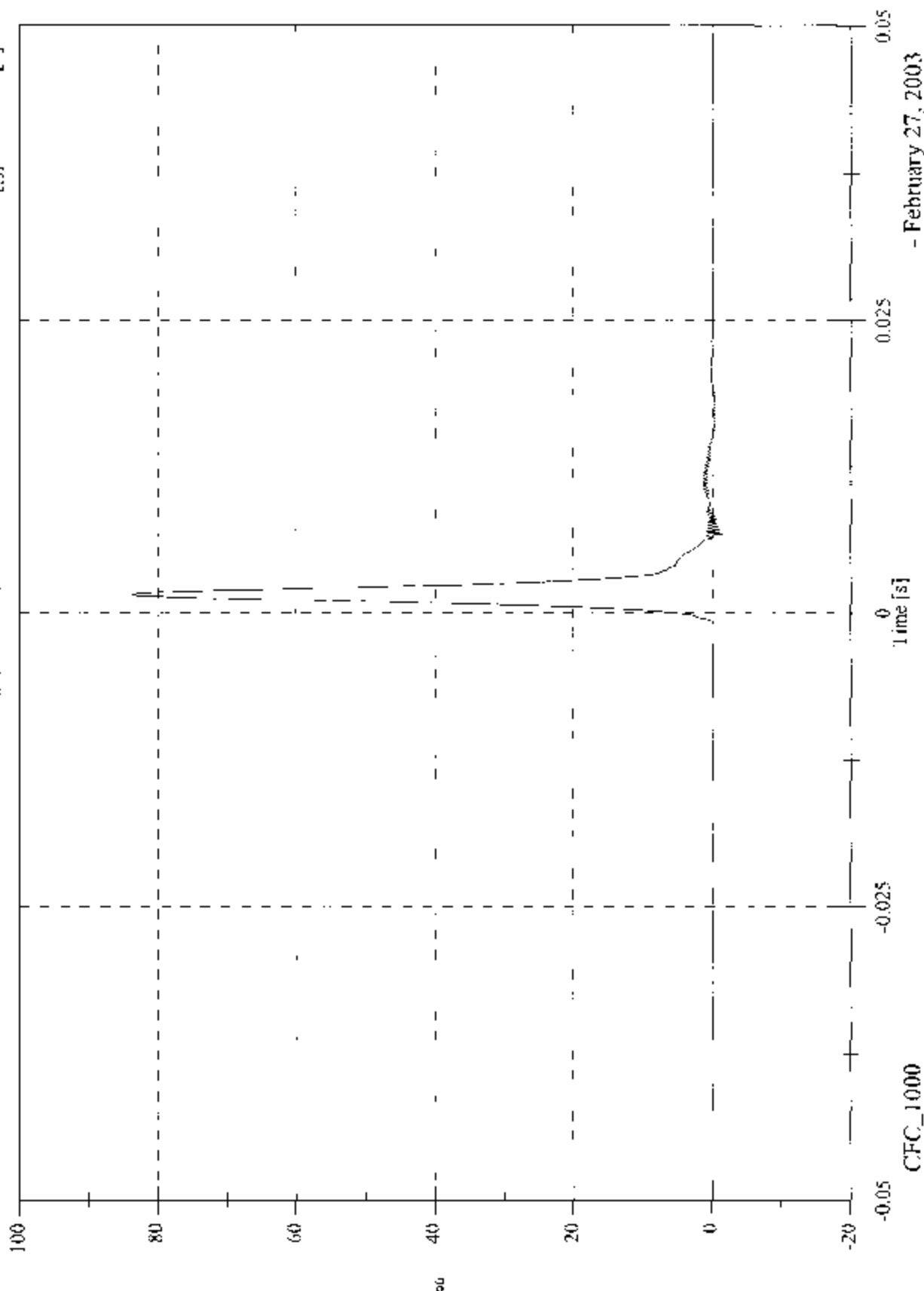


- February 27, 2003

FMVSS 2011C - Head Form Calibration Drops

Headform Z Acceleration

Max: 83.8 [g] at 0.002 [s]
Min: -1.4 [g] at 0.007 [s]

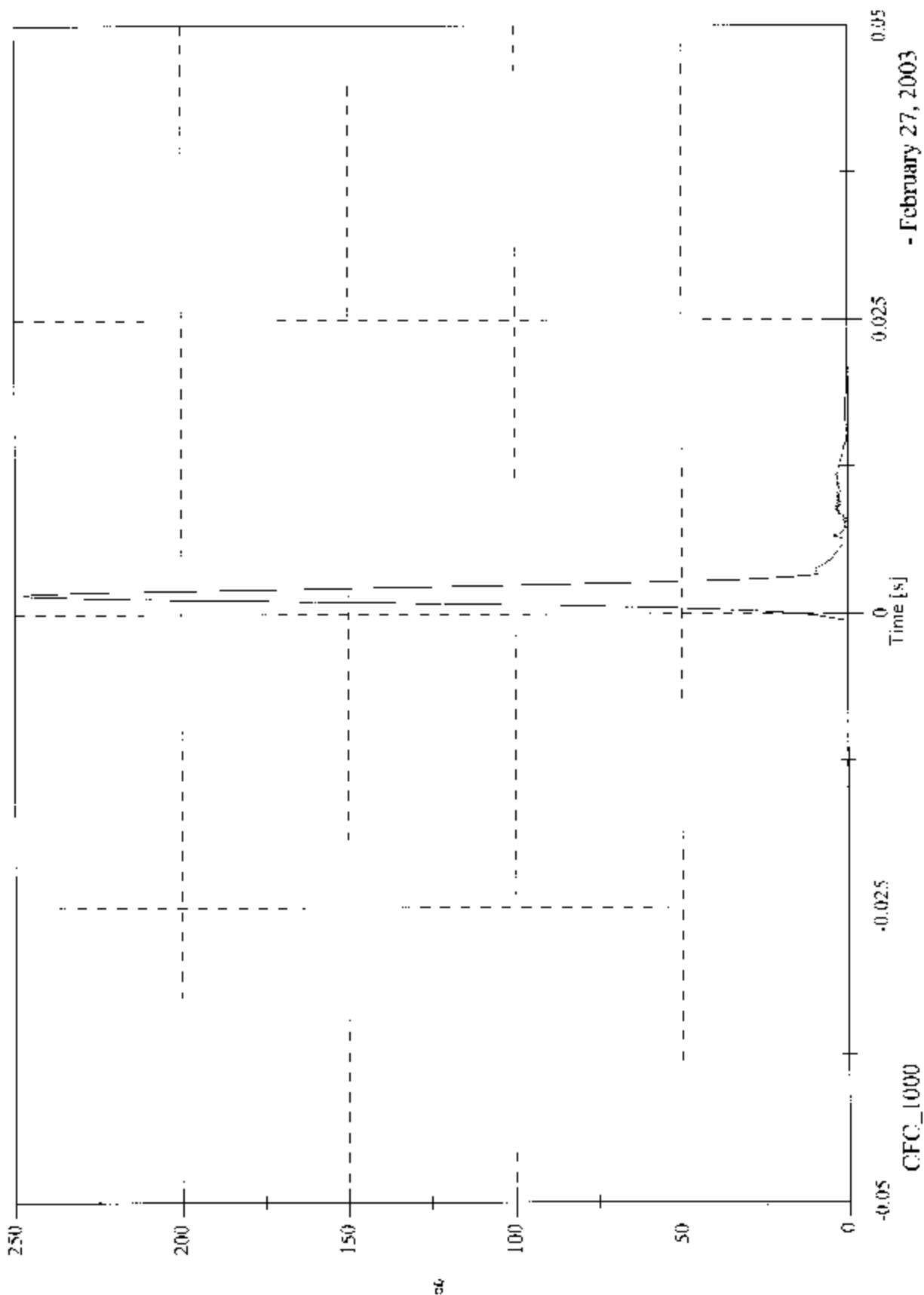


- February 27, 2003

FMVSS 201U - Head Form Calibration Drops

Max: 247.4 [g] at 0.002 [s]
Min: 0.0 [g] at -0.010 [s]

Headform Resultant



- February 27, 2003

PART 572L
HEAD DROP POST-TEST

MANUFACTURER:	FIRST TECHNOLOGIES SAFETY SYSTEMS	
SERIAL NUMBER:	805	
CALIBRATION DATE:	February 27, 2003	
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19°C to 26°C	22
RELATIVE HUMIDITY	10% to 70%	17
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	225.8
PEAK LATERAL ACCELERATION	15 Gs Maximum	1.4
IS ACCELERATION CURVE UNIMODAL?	YES	YES

HEAD ACCELEROMETER CALIBRATION INFORMATION

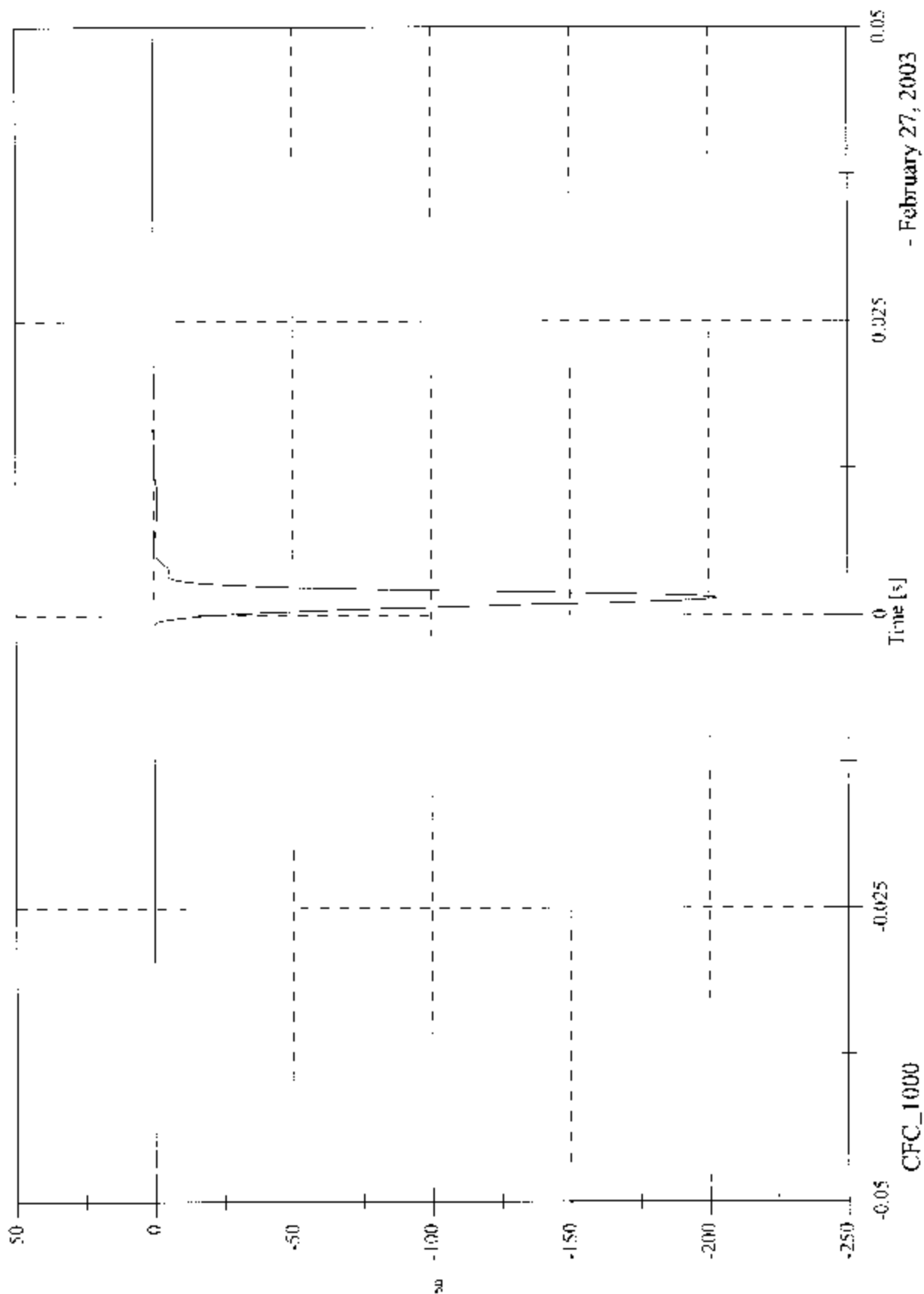
ID. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J38127	SEPT. 02	MAR. 03
2 - LATERAL	ENDEVCO	7264-2000T	J37980	SEPT. 02	MAR. 03
3 - VERTICAL	ENDEVCO	7264-2000T	J37854	SEPT. 02	MAR. 03

REMARKS:

FMVSS 2010 - Head Form Calibration Drops

Headform X Acceleration

Max: 0.3 [g] at 0.016 [s]
Min: -202.8 [g] at 0.001 [s]

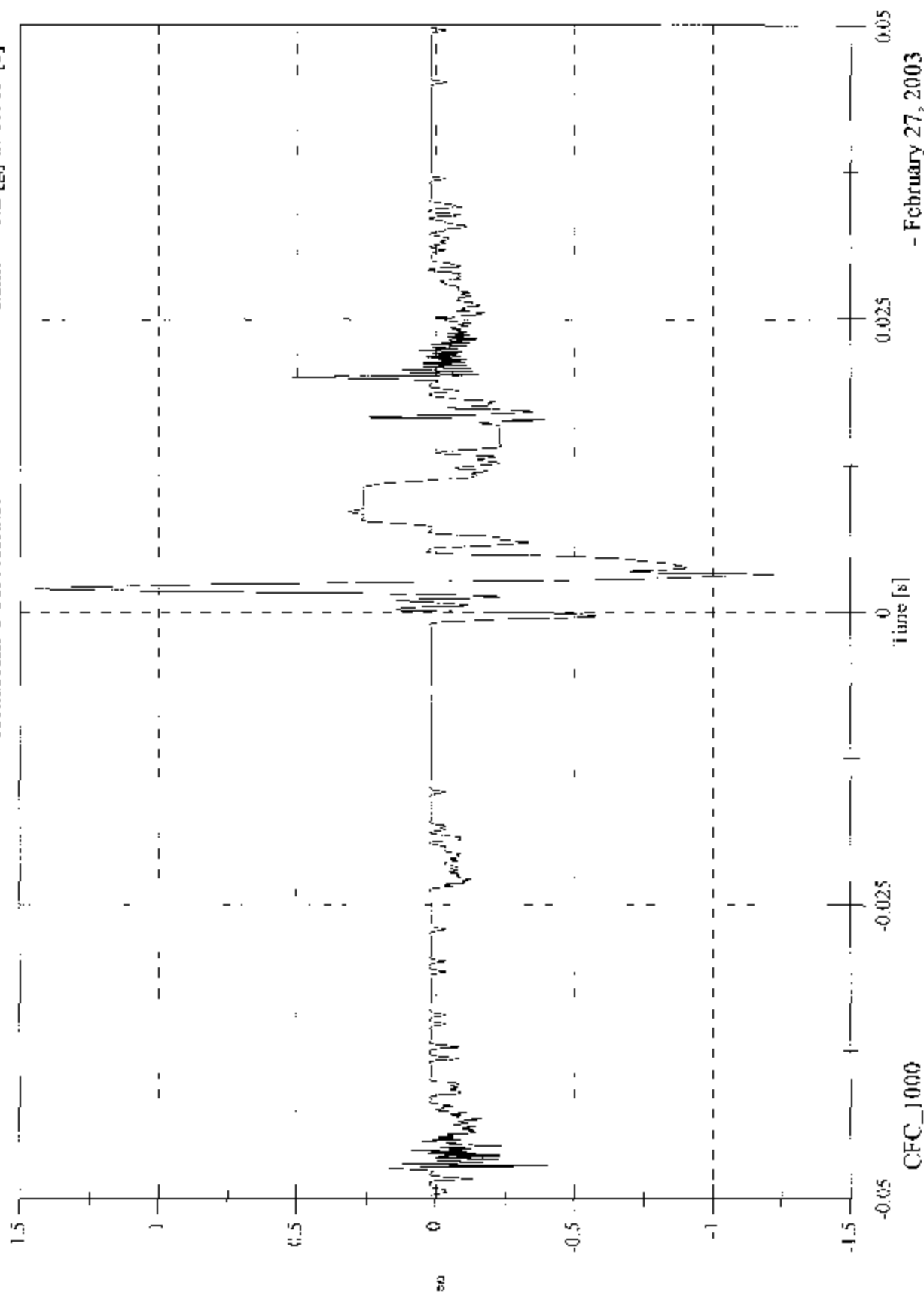


- February 27, 2003

FMVSS 201U - Head Form Calibration Drops

Max: 1.4 [g] at 0.002 [s]
Min: -1.2 [g] at 0.003 [s]

Headform Y Acceleration

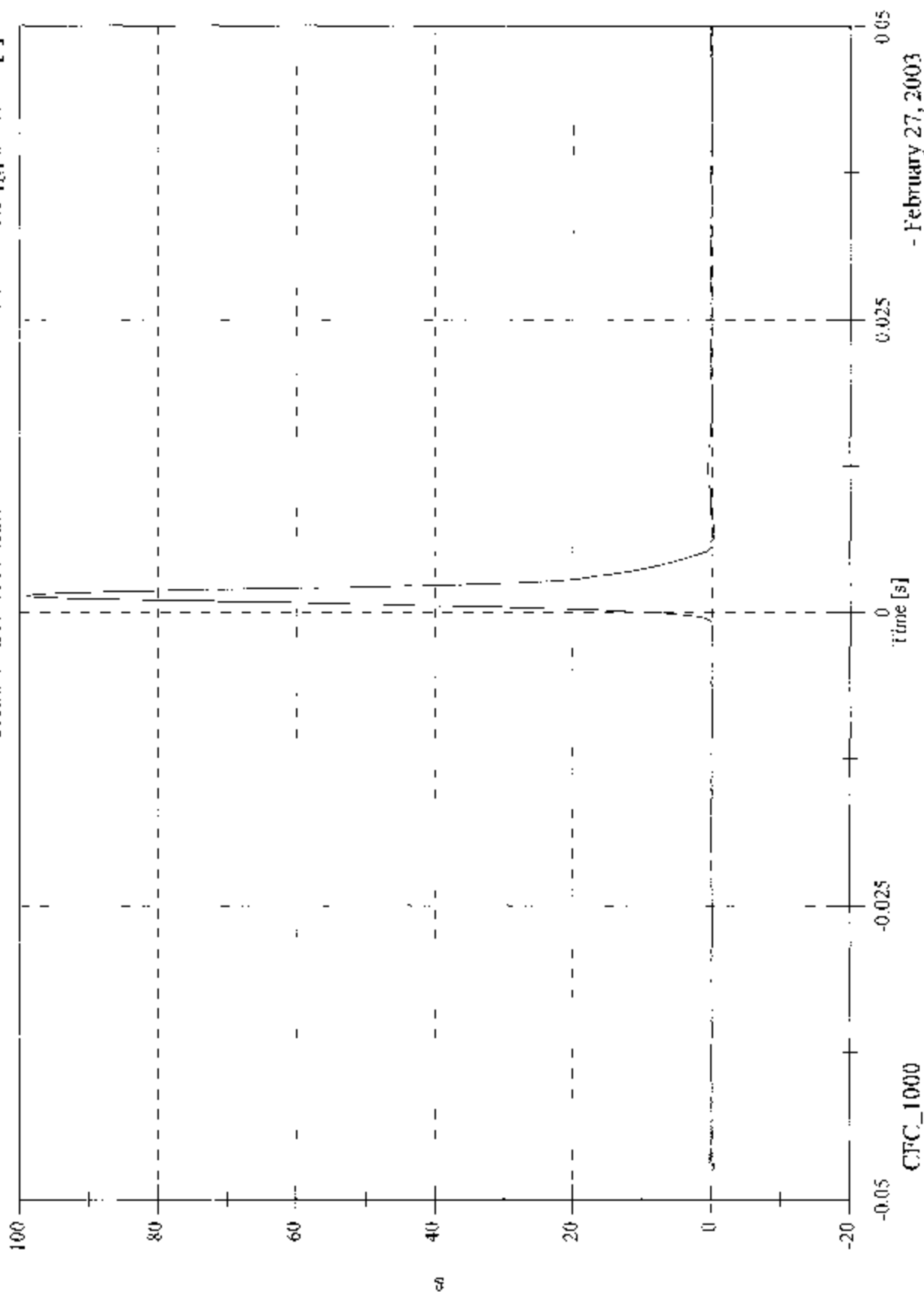


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FMVSS 201U - Head Form Calibration Drops

Max: 99.2 [g] at 0.001 [s]
 Min: -0.5 [g] at -0.047 [s]

Headform Z Acceleration



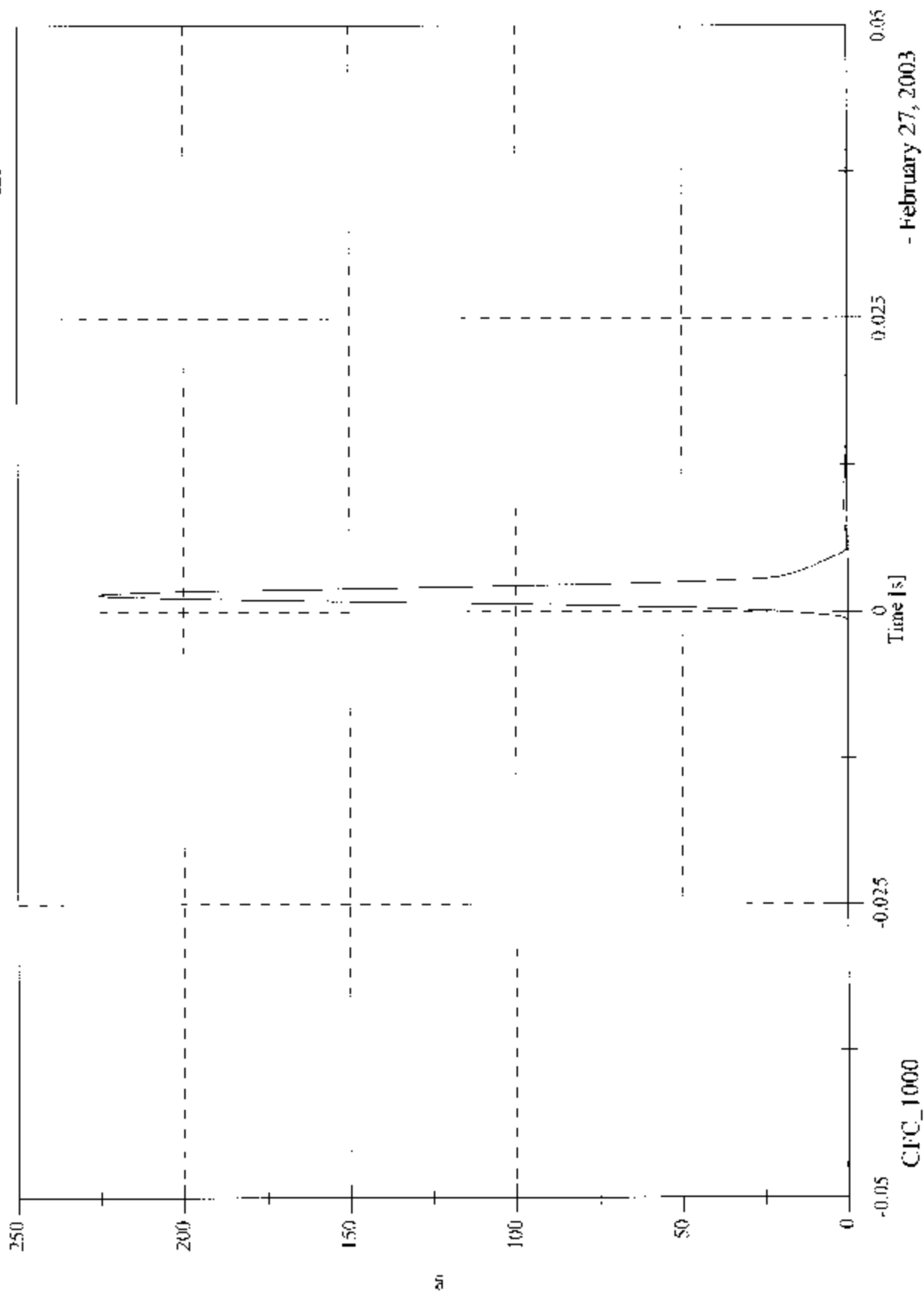
- February 27, 2003

FMVSS 201U - II Head Form Calibration Drops

Max: 225.8 [g] at 0.001 [s]

Min: 0.0 [g] at -0.015 [s]

Headform Resultant



PAR C 572L
HEAD DROP POST-TEST

MANUFACTURER:	APPLIED SAFETY TECHNOLOGIES CORPORATION	
SERIAL NUMBER:	1255	
CALIBRATION DATE:	February 27, 2003	
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19°C to 26°C	22
RELATIVE HUMIDITY	10% to 70%	17
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	239.9
PEAK LATERAL ACCELERATION	15 Gs Maximum	3.0
IS ACCELERATION CURVE UNIMODAL?	YES	YES

HEAD ACCELEROMETER CALIBRATION INFORMATION

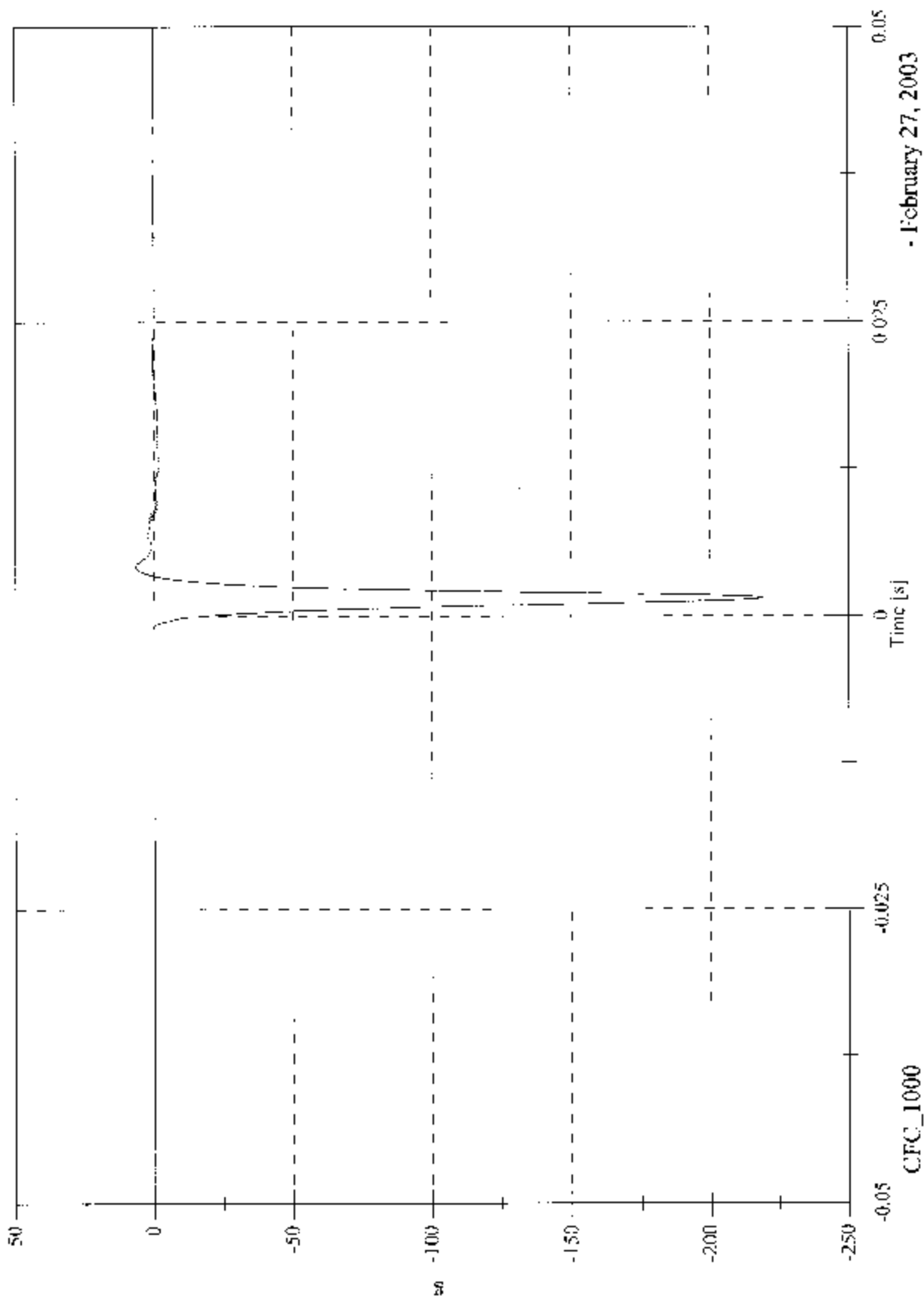
ID. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J41006	SEPT. 02	MAR. 03
2 - LATERAL	ENDEVCO	7264-2000T	J40994	SEPT. 02	MAR. 03
3 - VERTICAL	ENDEVCO	7264-2000T	J41007	SEPT. 02	MAR. 03

REMARKS

FMVSS 2010 - Headform Calibration Drops

Max: 6.8 [g] at 0.004 [s]
 Min: -219.2 [g] at 0.001 [s]

Headform X Acceleration

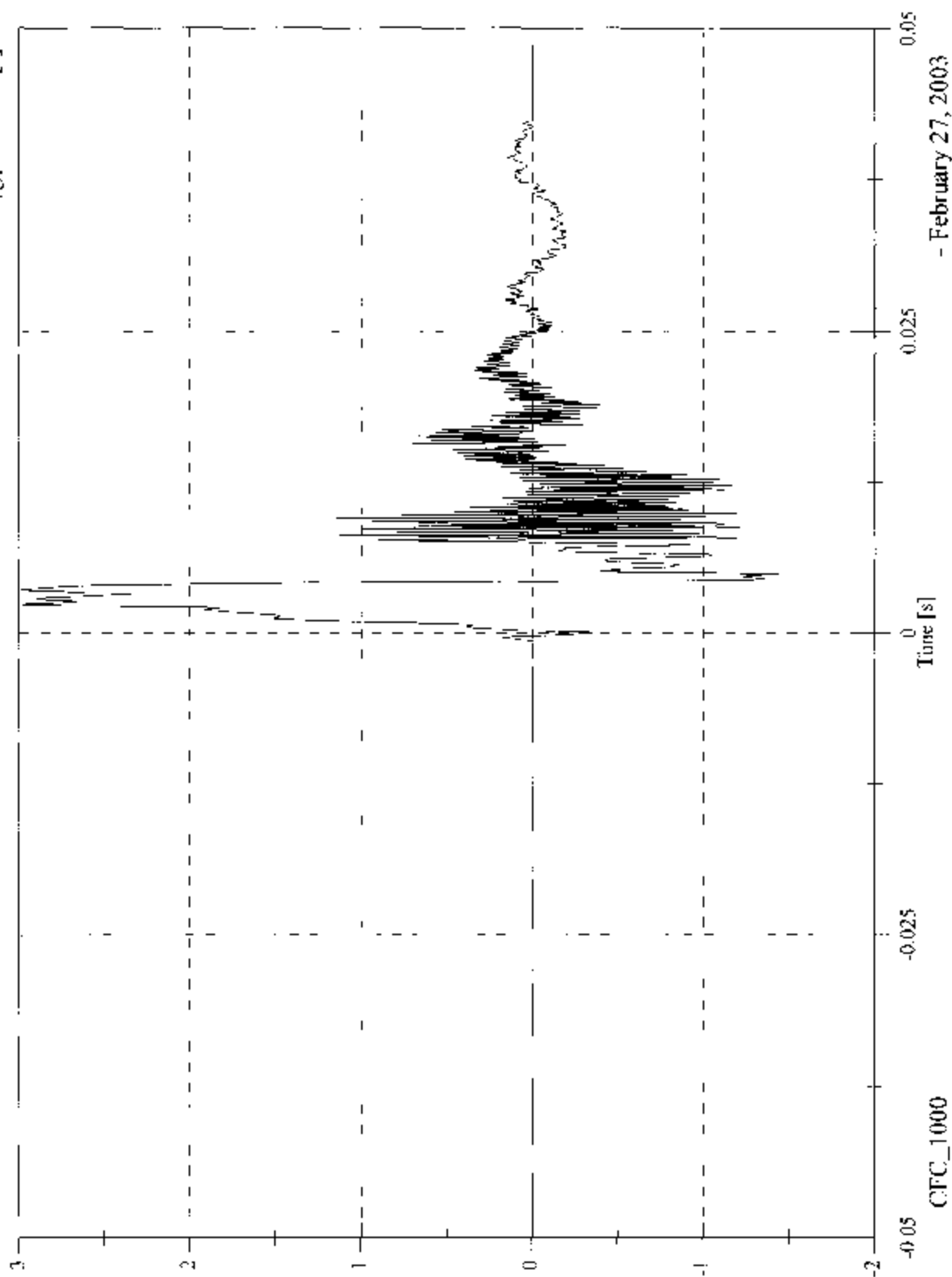


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FMVSS 201C - Head Form Calibration Drops

Max: 3.0 [g] at 0.004 [s]
Min: -1.4 [g] at 0.005 [s]

Headform Y Acceleration

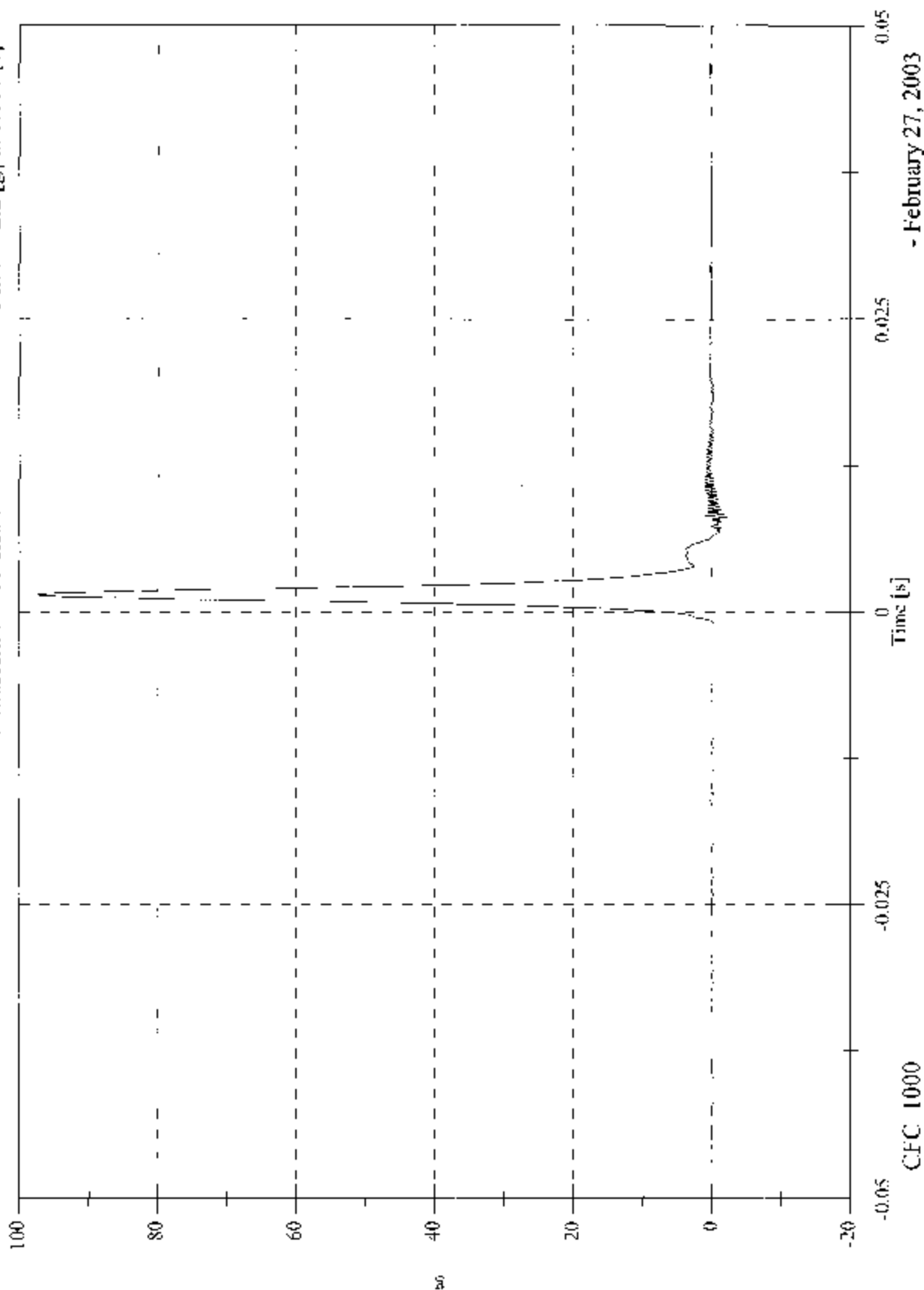


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FMVSS 201U - Head Form Calibration Drops

Max: 97.5 [g] at 0.001 [s]
 Min: -2.2 [g] at 0.008 [s]

Headform 7: Acceleration

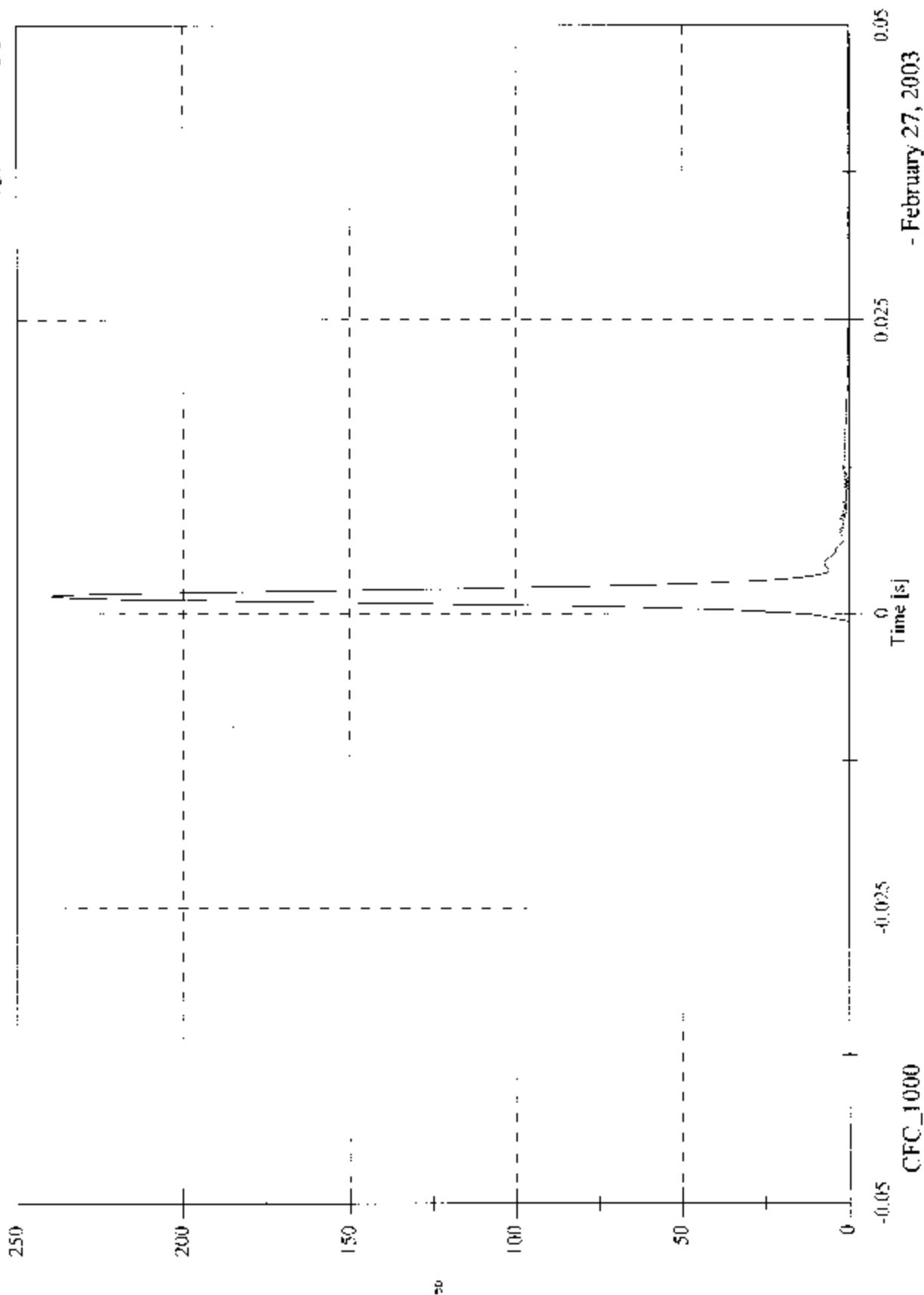


- February 27, 2003

IMVSS 201U - Head Form Calibration Drops

Max: 239.9 [g] at 0.001 [s]
 Min: 0.0 [g] at -0.016 [s]

Headform Resultant



- February 27, 2003